YMP QUADRILATERALS
ELLIPSOIDAL HEIGHTS FOR THE O – POINTS
(Six Quadrilaterals plus CRATER FLAT)
ALL Heights in Meters

Point	Orthometric Height[1]	Geoid Separation	Ellipsoidal Height
TRENCH 1 SW	1087.096	-28.881	[1058.215] 1058.124
TRENCH 14 SE	1177.169	-28.679	[1148.490] 1148.539
SOLITARIO NW[2]	1221.101	-28.795	[1192.306] 1192.306
YUCCA RIDGE NW	1338.994	-28.699	[1310.295] 1310.345
FRAN RIDGE NW	1138.993	-28.732	[1110.261] 1110.243
STAGE NW[3]	–	-29.027	[–] 891.377
CRATER FLAT	1127.427	-28.921	[1098.506] 1098.346

NOTES:

Ellipsoidal heights in brackets [ ] were obtained by applying the geoid separation value from the NGS GEOID 4 software application program to the level or trigonometric level elevation established for each station

1. Orthometric Heights are based on the National Geodetic Vertical Datum of 1929 (NGVD 29)

2. Ellipsoidal heights without brackets were obtained by holding the derived ellipsoidal height for SOLITARIO NW as a fixed height

3. STAGE NW does not have an orthometric height (NGVD 29)

QUADRILATERAL
O-POINT
ELLIPSOID HEIGHTS

QUADRILATERAL O-POINTS

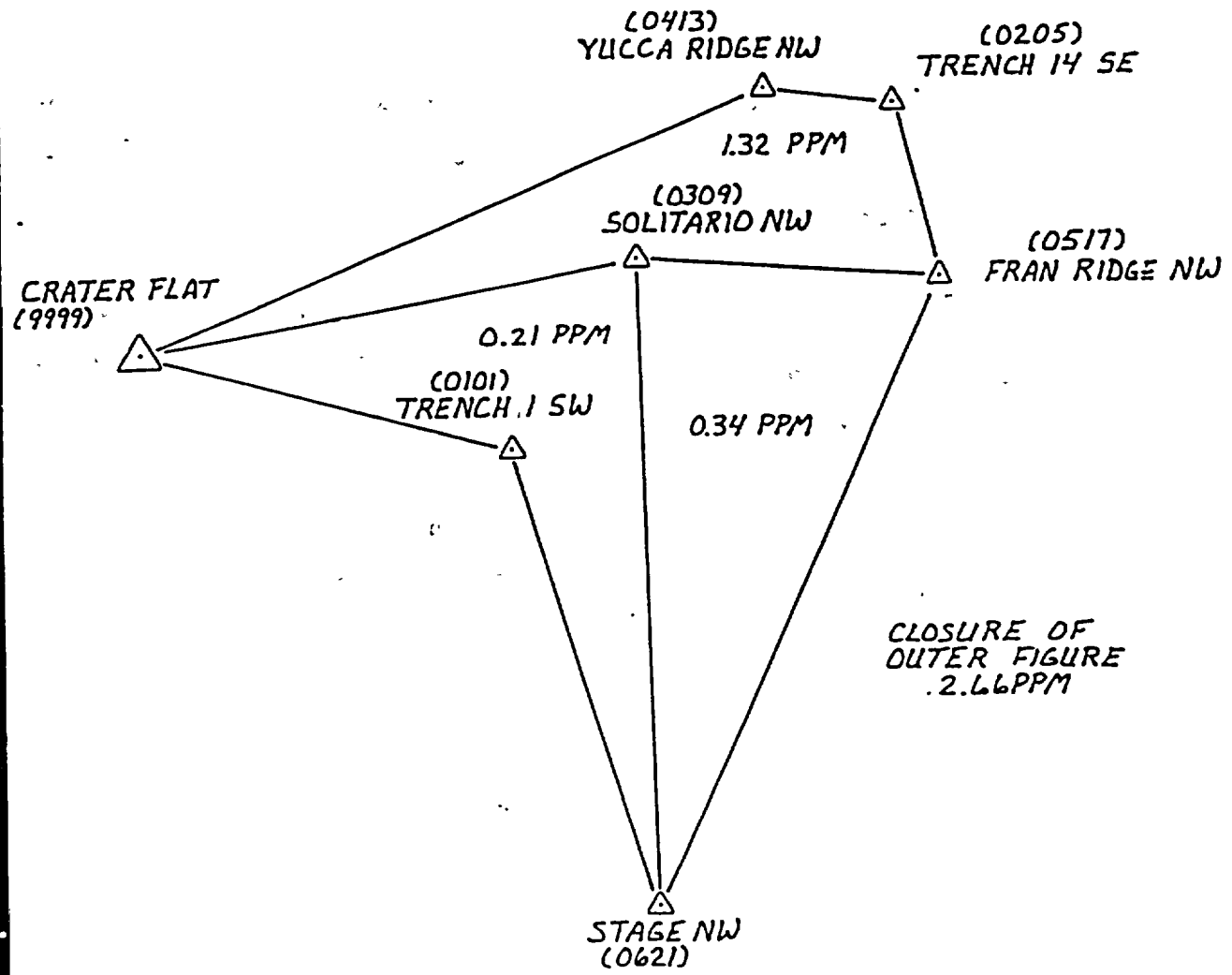
POINT	ORTHO HT	GEOID SEP	ELLIP HT.
TRENCH 1 SW (0101)	1087.096	-28.881	1058.215 1053.124 1058.120 (dh=0.003) 1058.257 (dh=0.032)
TRENCH 14 SE (0205)	1177.169	-28.679	1148.490 1148.539 1148.524 (dh=0.009) 1148.634 (dh=0.032)
SOLITARIO NW (0309)	1221.101	-28.795	1192.306 (Held) (Held)
YUCCA RIDGE NW (0413)	1338.994	-28.699	1310.295 1310.345 1310.329 (dh=-0.0 1310.378 (dh=-0.032
FRAN RIDGE NW (0517)	1138.993	-28.732	1110.261 1110.243 1110.247 (dh=-0.005 1110.228 (dh=-0.005 1110.349 (dh=-0.032)
STAGE NW (0621)	—	-29.027	891.377 891.366 (dh=0.015) 891.381 (dh=0.002) 891.514 (dh=-0.032)
CRATER FLAT (9999)	1127.427	-28.921	1098.506 1098.346 1098.337 (dh=0.004) 1098.335 (dh=0.006)

Blue ellipsoidal heights are the results obtained by computations of different networks, holding see Na
R 1 ellipsoidal heights are obtained by holding the derived ellipsoidal height
for SOLITARIO NW
Black ellipsoidal heights are obtained by applying the geoid separation from
the NGS GEOID4 program to the trigonometric level elevations established for

DESCRIPTION OF STAGE SE

Beatty, Nevada, from the intersection of U.S. 95 and State Highway 374, proceed SE along U.S. highway 95 for 14.0 miles. Turn northerly onto a graded road, thence 5.6 miles to a T-intersection E., thence East 3.2 miles to a bend in the road; proceed northeasterly 4.0 miles to a T-intersection South; thence 3.0 South on a graded road to a Y-intersection Southeast and South; proceeding South on the track road (four-wheel drive may be required) for 2.9 miles to an East-West T-intersection;thence proceeding East for 1.3 miles. Proceed on foot South for 1325 feet to the top of the first ridge. The station is a standard tablet cemented in bedrock. Station is located six feet west of rock cairn. The cairn is visible from the road. The tablet is stamped "STAGE SE 1991".

YUCCA MOUNTAIN, NV
QUADRILATERAL 'O-POINTS



Trimble Loop Closure Utility

Start Traverse at Station: 9999 CRATER FLAT
Starting Coords : 36x48'49.75856"N 116x33'54.29733"W 1098.506

Baseline 1
File Name: 99130881.FIX
From Station: 9999 To Station: 0413 YUCCA RIDGE NW
Distance Travelled (m): 10691.193
Current Coords : 36x51'08.40974"N 116x27'19.00189"W 1310.500

Baseline 2
File Name: 05130881.FIX
From Station: 0413 To Station: 0205 TRENCH 14 SE
Distance Travelled (m): 12959.216
Current Coords : 36x50'57.49973"N 116x25'48.71797"W 1148.694

Baseline 3
File Name: 05170911.FIX
From Station: 0205 To Station: 0517 FRAN RIDGE NW
Distance Travelled (m): 15709.625
Current Coords : 36x49'31.20604"N 116x25'20.62919"W 1110.399

Baseline 4
File Name: 09170911.FIX
From Station: 0517 To Station: 0309 SOLITARIO NW
Distance Travelled (m): 20739.483
Current Coords : 36x49'36.31954"N 116x28'43.43266"W 1192.457

Baseline 5
File Name: 99090891.FIX
From Station: 0309 To Station: 9999 CRATER FLAT
Distance Travelled (m): 28578.362
Current Coords : 36x48'49.75803"N 116x33'54.29845"W 1098.486

End Traverse at Station: 9999
Distance Travelled (m): 28578.362 Precision (ppm): 1.32
dx: -0.022 dy: 0.018 dz: -0.025 dh: -0.020
Ending Coords : 36x48'49.75803"N 116x33'54.29845"W 1098.486
Reference Coords: 36x48'49.75856"N 116x33'54.29733"W 1098.506

Trimble Loop Closure Utility

Start Traverse at Station: 0309 SOLITARIO NW
Starting Coords : 36x49'36.31997"N 116x28'43.43156"W 1192.471

Baseline 1
File Name: 09170911.FIX
From Station: 0309 To Station: 0517 FRAN RIDGE NW
Distance Travelled (m): 5029.857
Current Coords : 36x49'31.20617"N 116x25'20.62809"W 1110.413

Baseline 2
File Name: 21170911.FIX
From Station: 0517 To Station: 0621 STAGE NW
Distance Travelled (m): 16271.083
Current Coords : 36x44'03.72308"N 116x28'39.70639"W 891.532

Baseline 3
File Name: 09210911.FIX
From Station: 0621 To Station: 0309 SOLITARIO NW
Distance Travelled (m): 26530.225
Current Coords : 36x49'36.32019"N 116x28'43.43140"W 1192.467

End Traverse at Station: 0309
Distance Travelled (m): 26530.225 Precision (ppm): 0.34
dx: 0.007 dy: 0.005 dz: 0.003 dh: -0.004
Ending Coords : 36x49'36.32019"N 116x28'43.43140"W 1192.467
Reference Coords: 36x49'36.31997"N 116x28'43.43156"W 1192.471

Trimble Loop Closure Utility

Start Traverse at Station: 9999 CRATER FLAT
Starting Coords : 36x48'49.75856"N 116x33'54.29733"W 1098.506

Baseline 1
File Name: 99130881.FIX To Station: 0413 YUCCA RIDGE NW
From Station: 9999
Distance Travelled (m): 10691.193
Current Coords : 36x51'08.40974"N 116x27'19.00189"W 1310.500

Baseline 2
File Name: 05130881.FIX To Station: 0205 TRENCH 14 SE
From Station: 0413
Distance Travelled (m): 12959.216
Current Coords : 36x50'57.49973"N 116x25'48.71797"W 1148.694

Baseline 3
File Name: 05170911.FIX To Station: 0517 FRAN RIDGE NW
From Station: 0205
Distance Travelled (m): 15709.625
Current Coords : 36x49'31.20604"N 116x25'20.62919"W 1110.399

Baseline 4
File Name: 21170911.FIX To Station: 0621 STAGE NW
From Station: 0517
Distance Travelled (m): 26950.851
Current Coords : 36x44'03.72264"N 116x28'39.70749"W 891.518

Baseline 5
File Name: 01210891.FIX To Station: 0101 TRENCH 1 SW
From Station: 0621
Distance Travelled (m): 34794.140
Current Coords : 36x48'10.27516"N 116x29'57.34627"W 1058.257

Baseline 6
File Name: 99010891.FIX To Station: 9999 CRATER FLAT
From Station: 0101
Distance Travelled (m): 40793.497
Current Coords : 36x48'49.75559"N 116x33'54.29928"W 1098.473

End Traverse at Station: 9999
Distance Travelled (m): 40793.497 Precision (ppm): 2.66
dx: -0.056 dy: -0.004 dz: -0.093 dh: -0.033
Ending Coords : 36x48'49.75559"N 116x33'54.29928"W 1098.473
Reference Coords: 36x48'49.75856"N 116x33'54.29733"W 1098.506

Trimble Loop Closure Utility

Start Traverse at Station: 9999 CRATER FLAT
Starting Coords : 36x48'49.75856"N 116x33'54.29733"W 1098.506

Baseline 1
Fi Name: 99010891.FIX
From Station: 9999 To Station: 0101 TRENCH 1 SW
Distance Travelled (m): 5999.357
Current Coords : 36x48'10.27813"N 116x29'57.34432"W 1058.290

Baseline 2
File Name: 01210891.FIX
From Station: 0101 To Station: 0621 STAGE NW
Distance Travelled (m): 13842.646
Current Coords : 36x44'03.72561"N 116x28'39.70555"W 891.551

Baseline 3
File Name: 09210891.FIX
From Station: 0621 To Station: 0309 SCLITARIC NW
Distance Travelled (m): 24101.704
Current Coords : 36x49'36.31997"N 116x28'43.43156"W 1192.471

Baseline 4
File Name: 99090891.FIX
From Station: 0309 To Station: 9999 CRATER FLAT
Distance Travelled (m): 31940.583
Current Coords : 36x48'49.75847"N 116x33'54.29735"W 1098.499

End Traverse at Station: 9999
Distance Travelled (m): 31940.583 Precision (ppm): 0.21
dx -0.001 dy: 0.003 dz: -0.006 dh: -0.006
Ending Coords : 36x48'49.75847"N 116x33'54.29735"W 1098.499
Reference Coords: 36x48'49.75856"N 116x33'54.29733"W 1098.506

GPS

GPS SURVEY
DAILY SUMMARY OF OBSERVATIONS FIELD LOGS

PROJECT: YUCCA MTN

SESSION	DATE	RCV-247	RCV-248	RCV-249	RCV 245 COMMENTS
088-1	3/29/91	0304 SULNW (NO DATA)	9999 CRATER	0413 YUCNW	0205 TRI4SE
089-1	3/30/91	0101 TRISW	9999 CRATER	0621 STALENW	0304 SULNW
091-1	4/1/91	0205 TRI4SE	0517 FRANNW	0621 STALENW	0304 SULNW

TRIMBLE 4000ST

SITE LOG

FIELD OPERATOR: BENSON / SAITO

PROJECT: YUCCA MTN

SITE ID 9999/CRATER SESSION 1 FILE # 99990891

APPROX. COORD:	LATITUDE	LONGITUDE	HEIGHT
	N-36 44 45	W-116 30 00	1201

DATE: 3/30/91 DOY
RECEIVER NO: 248
ANTENNA NO: 073

STATIC ☒
KINEMATIC ☐
PSEUDORANGE ☐

OBSTRUCTION OF HORIZON:	NORTH	EAST	SOUTH	WEST
	—	—	—	—

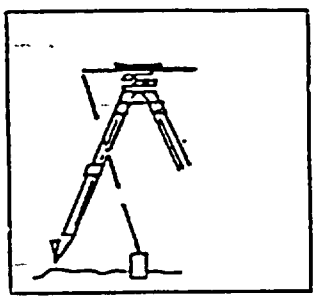
HEIGHT OF PHASE CENTER ABOVE MARKER: 1.482 1.487

STATIC

SCALE READING.....1.486.....m

KINEMATIC/PSEUDORANGE

SCALE READING.....—.....m



IMPORTANT OBSERVATIONS: (NOTE TIME ALSO)

BATTERY 248-2

NGS "CRATER FLAT 1949"

TRIMBLE 4000ST

SITE LOG

FIELD OPERATOR: BENSON/BUTO

PROJECT: YUCCA MTN

SITE ID: 0101/TRISLV SESSION: 1 FILE #: 0101DA91

APPROX. COORD:	LATITUDE	LONGITUDE	HEIGHT
	N-36 48 45	W-116 30 00	1200

DATE: 3/31/91 DFS
RECEIVER NO: 247
ANTENNA NO: 072

STATIC [X]
KINEMATIC [ ]
PSEUDORANGE [ ]

OBSTRUCTION OF HORIZON:	NORTH	EAST	SOUTH	WEST
	—	—	—	—

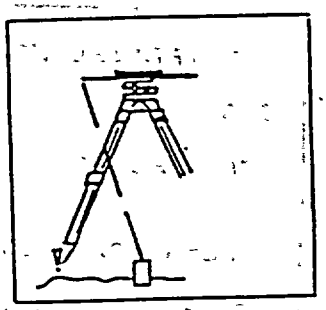
HEIGHT OF PHASE CENTER ABOVE MARKER: After 1.4545

STATIC

SCALE READING: 1.4535 (1.454) mean m

KINEMATIC/PSEUDORANGE

SCALE READING: ——— m



BATTERY: 247-2

IMPORTANT OBSERVATIONS: NOTE TIME ALSO 9.28 A.M.

TRENCH 1 S.W. 1983 U.S.C.S.

Plumb DX after

TRIMBLE 4000ST

SITE LOG

FIELD OPERATOR: BENSON / ALETO

PROJECT: YUCCA MTN

SITE ID: 0309/SOLNW SESSION: 1 FILE: # 03090:91

APPROX. COORD:	LATITUDE	LONGITUDE	HEIGHT
	N-36 48 45	W-116 30 00	1200

DATE: 3/30/91 DFB
RECEIVER NO: 245
ANTENNA NO: 071

STATIC ☒
KINEMATIC ☐
PSEUDORANGE ☐

OBSTRUCTION OF HORIZON:	NORTH	EAST	SOUTH	WEST
	—	—	—	—

HEIGHT OF PHASE CENTER ABOVE MARKER.

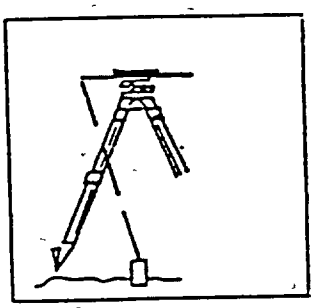
STATIC

SCALE READING.....1.434.....m

1.436
1.434
1.432

KINEMATIC/PSEUDORANGE

SCALE READING.....m



BATTERY 245-2

IMPORTANT OBSERVATIONS: (NOTE TIME ALSO)

USGS "SOLITARIO NW 1983"

TRIMBLE 4000ST

SITE LOG

FIELD OPERATOR: BENSON / ALITO

PROJECT YUCCA MTN

SITE ID 0621 / STAGE ~~NE~~ NW SESSION 1 FILE # 06210891

APPROX. COORD.:	LATITUDE	LONGITUDE	HEIGHT
	N-36 48 45	W-116 30 00	1200

DATE: 3/30/91 DOY 244
RECEIVER NO: 0710
ANTENNA NO:

STATIC ☒
KINEMATIC ☐
PSEUDORANGE ☐

OBSTRUCTION OF HORIZON:	NORTH	EAST	SOUTH	WEST
	—	—	—	—

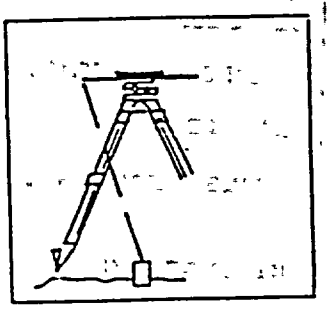
HEIGHT OF PHASE CENTER ABOVE MARKER.

STATIC

SCALE READING.. ~~1.1445~~ ... 1.445 ✓ m

KINEMATIC/PSEUDORANGE

SCALE READING..... m



IMPORTANT OBSERVATIONS. (NOTE TIME ALSO) 10:50 A.M.
Stage N.W. 1991 U.S.C.S.

BATTERY 244-2

After - Plunk at NE edge of center mark (1mm)

TRIMBLE 4000ST

SITE LOG

FIELD OPERATOR: NEIFERT / ALTO

PROJECT: YUCCA MTN

SITE ID: 9999 / CRATER SESSION: 1 FILE #: 99990891

APPROX. COORD:	LATITUDE	LONGITUDE	HEIGHT
	N-36 48 45	W-116 30 00	1200

DATE: 3/29/91 DOY 248
RECEIVER NO:
ANTENNA NO: 073

STATIC [X]
KINEMATIC [ ]
PSEUDORANGE [ ]

OBSTRUCTION OF HORIZON:	NORTH	EAST	SOUTH	WEST

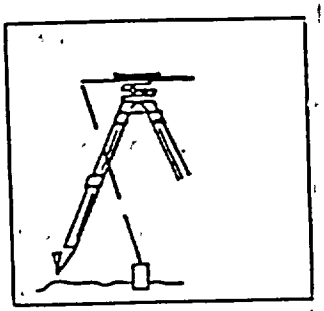
HEIGHT OF PHASE CENTER ABOVE MARKER:

STATIC

SCALE READING..1.487.....m

KINEMATIC/PSEUDORANGE

SCALE READING.....m



IMPORTANT OBSERVATIONS: NOTE TIME ALSO 10:15 AM (PST)

CRATER FLAT 1949 USC&GS

BATTERY 248-1

TRIMBLE 4000ST

SITE LOG

FIELD OPERATOR: BENSON/AUTO

PROJECT: YUCCA MTN

SITE ID 0413/YUCNW SESSION 1 FILE # 04130881

APPROX. COORD.:	LATITUDE	LONGITUDE	HEIGHT
	N-36 48 45	W-116 30 00	1200

DATE: 3/29/91 UPB
RECEIVER NO: 244
ANTENNA NO: 070

STATIC ☒
KINEMATIC ☐
PSEUDORANGE ☐

OBSTRUCTION OF HORIZON:	NORTH	EAST	SOUTH	WEST

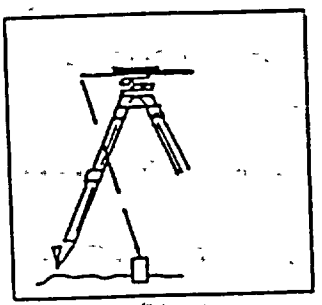
HEIGHT OF PHASE CENTER ABOVE MARKER.
1.591
1.593
1.592

STATIC

SCALE READING....1.592.....m

KINEMATIC/PSEUDORANGE

SCALE READING.....m



BATTERY 244-1

IMPORTANT OBSERVATIONS: (NOTE TIME ALSO)

USGS "YUCCA RIDGE NW
1993"

TRIMBLE 4000ST

SITE LOG

FIELD OPERATOR: BENSON/PILTZ

PROJECT: YUCCA MTN

SITE ID 0205/TRI4SE SESSION 1 FILE # 02050281

APPROX. COORD:	LATITUDE	LONGITUDE	HEIGHT
	N- 36 49 45	W- 116 30 00	1200

DATE: 5/29/91 DRB
RECEIVER NO: 245
ANTENNA NO: 071

STATIC ☒
KINEMATIC ☐
PSEUDORANGE ☐

OBSTRUCTION OF HORIZON:	NORTH	EAST	SOUTH	WEST
	—	—	—	—

HEIGHT OF PHASE CENTER ABOVE MARKER:

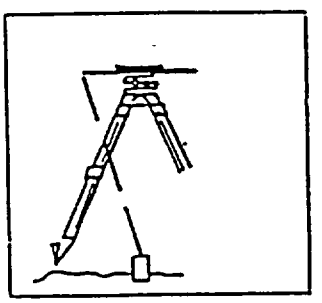
STATIC

SCALE READING 1.549 m

1.550
1.548
1.549

KINEMATIC/PSEUDORANGE

SCALE READING — m



BATTERY 245-1

IMPORTANT OBSERVATIONS: (NOTE TIME ALSO)

USGS "TRENCH 14 SE 1983"

TRIMBLE 4000ST

SITE LOG

FIELD OPERATOR: NEIFERT/ALTO

PROJECT: YUCCA MTN

SITE ID 0309/SCLNW SESSION 1 FILE # 03090881

APPROX. COORD:	LATITUDE	LONGITUDE	HEIGHT
	N-36 48 45	W-116 30 00	1202'

DATE: 3/29/91
RECEIVER NO: 247
ANTENNA NO: 072

STATIC ☒
KINEMATIC ☐
PSEUDORANGE ☐

OBSTRUCTION OF HORIZON:	NORTH	EAST	SOUTH	WEST

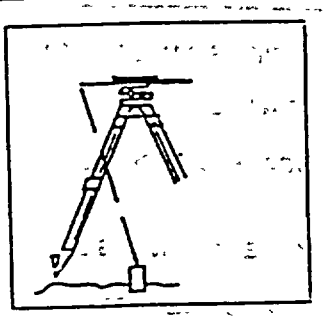
HEIGHT OF PHASE CENTER ABOVE MARKER: 1.645 1.644

STATIC

SCALE READING.....m

KINEMATIC/PSEUDORANGE

SCALE READING.....m



BATTERY: 247-1

IMPORTANT OBSERVATIONS. (NOTE TIME ALSO) 11:25 A.M. (PST)
SOLITARIO N.W. 1983 U.S.G.S.

NO FILE IN DIRECTORY
- COLLECTED NO DATA

TRIMBLE 4000ST

SITE LOG

FIELD OPERATOR: BENSON/ALTO

PROJECT: YUCCA MTN

SITE ID 0621/STAGE NW SESSION 1 FILE # 06210911

APPROX. COORD:	LATITUDE	LONGITUDE	HEIGHT
	N-36 49 45	W-116 30 00	1200

DATE: 4/1/91 DRB
RECEIVER NO: 244
ANTENNA NO: 020

STATIC ☒
KINEMATIC ☐
PSEUDORANGE ☐

OBSTRUCTION OF HORIZON:	NORTH	EAST	SOUTH	WEST
	—	—	—	—

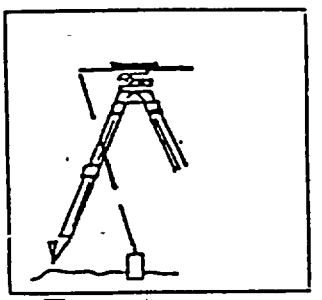
HEIGHT OF PHASE CENTER ABOVE MARKER: 1.445
1.445

STATIC

SCALE READING.....1.445.....m

KINEMATIC/PSEUDORANGE

SCALE READING.....m



IMPORTANT OBSERVATIONS: (NOTE TIME ALSO)

BATTERY 244-1

USGS "STAGE NW 1991"

At end north edge of centermark
½mm North

TRIMBLE 4000ST

SITE LOG

FIELD OPERATOR: BENSON / AUTO

PROJECT: YUCCA MTN

SITE ID 0309/SOLNW1 SESSION 1 FILE # 03090911

APPROX. COORD:	LATITUDE	LONGITUDE	HEIGHT
	N-36 42 45	W-116 30 00	1202

DATE: 4/1/91 DOB
RECEIVER NO: 245
ANTENNA NO: 071

STATIC ☒
KINEMATIC ☐
PSEUDORANGE ☐

OBSTRUCTION OF HORIZON:	NORTH	EAST	SOUTH	WEST
	—	—	—	—

HEIGHT OF PHASE CENTER ABOVE MARKER:

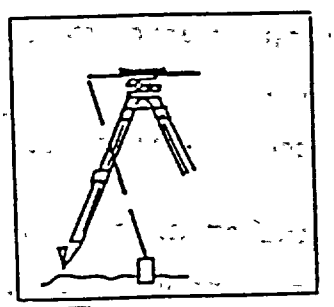
STATIC

SCALE READING 1.435 .43 ✓ m

1.435
1.435
1.433
4303
14343

KINEMATIC/PSEUDORANGE

SCALE READING m



BATTERY 245-1

IMPORTANT OBSERVATIONS: (NOTE TIME ALSO)

USGS SOLITARIO NW 1983

centered OK after

TRIMBLE 4000ST

SITE LOG

FIELD OPERATOR: BRAY/ALTO

PROJECT YUCCA MTN

SITE ID 0205/TRI4SE SESSION 1 FILE # 02050911

APPROX. COORD:	LATITUDE	LONGITUDE	HEIGHT
	N-36 49 45	W-116 30 02	1200

DATE: 4/1/91 DPB
RECEIVER NO: 247
ANTENNA NO: 072

STATIC ☒
KINEMATIC ☐
PSEUDORANGE ☐

OBSTRUCTION OF HORIZON:	NORTH	EAST	SOUTH	WEST
	—	—	—	—

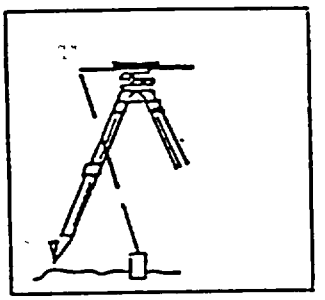
HEIGHT OF PHASE CENTER ABOVE MARKER: 1.595 1.596 1.596

STATIC

SCALE READING 1.595 m

KINEMATIC/PSEUDORANGE

SCALE READING / m



IMPORTANT OBSERVATIONS: (NOTE TIME ALSO)

BATTERY 247 #1

Powered down by low battery

TRIMBLE 4000ST

SITE LOG

FIELD OPERATOR: BRAY/ALLTO

PROJECT: YUCCA MTN

SITE ID 0517/FRANNW SESSION 1 FILE # 05170911

APPROX. COORD:	LATITUDE	LONGITUDE	HEIGHT
	N-36 49 45	W-116 30 00	1200

DATE: 4/4/91 DRB
RECEIVER NO: 248
ANTENNA NO: 023

STATIC ☒
KINEMATIC ☐
PSEUDORANGE ☐

OBSTRUCTION OF HORIZON:	NORTH	EAST	SOUTH	WEST
	—	—	—	—

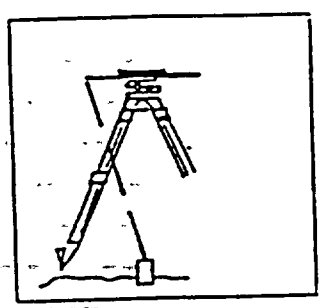
HEIGHT OF PHASE CENTER ABOVE MARKER: 1.536 1.537 1.537

STATIC

SCALE READING 1.537 m

KINEMATIC/PSEUDORANGE

SCALE READING ✓ m



BATTERY 248 #1

IMPORTANT OBSERVATIONS: (NOTE TIME ALSO)

QUADRILATERAL ABBREV (LABELS)

Trench 1	TR 1 (NW, NE, SW, SE)
Trench 14	TR 14 "
Solitario	SOL "
Yucca Ridge	YUC "
Fran Ridge	FRAN "

STATION NUMBER	STATION NAME
0101	TR1SW
0102	TR1SE
0103	TR1NW
0104	TR1NE
0205	TR14SE
0206	TR14SW
0207	TR14NE
0208	TR14NW
0309	SOLNW
0310	SOLNE
0311	SOLSW
0312	SOLSE
0413	YUCNW
0414	YUCNE
0415	YUCSW
0416	YUCSE
0517	FRANNW
0518	FRANNE
0519	FRANSW
0520	FRANSE
0621	STAGE NW
0622	STAGE
0623	STAGE
0624	STAGE

NOAA - NOS - C&GS
NATIONAL GEODETIC SURVEY
December 1988

Geodetic Control Diagram

DEATH VALLEY

NAD 83 GEODETIC AND STATE PLANE COORDINATES

GIDOSN	STATION NAME	LATITUDE (NORTH)	LONGITUDE (WEST)	NORTHING METERS*	EASTING METERS*	ZONE	CONVERGENCE	SCALE FACTOR	ELEV. (M)	GEOID HGT (±1 M)	POS QUAL
JG1161130001	CANE	36 46 33.73591	116 10 33.57964	6224888.115	543709.099	NV C	0 17 37.55	0.9999236	1821	SC - 28.4	1
JG1173210002	CENTER	36 09 23.50786	117 37 2.59089	592238.784	2124407.206	CA 4	0 49 29.46	0.9999741	1880.6	- 30.4	1
JG1174320001	CERRO GORDO	36 32 19.67434	117 47 12.28277	634322.828	2108634.935	CA 4	0 43 25.72	0.9999413	2801.9	- 28.7	1
JG1173210003	CHIPS	36 09 29.63203	117 30 27.35226	592575.384	2134282.248	CA 4	0 53 25.25	0.9999739	1718.3	- 30.5	1
JG1173240001	COSO	36 08 51.87352	117 42 24.89608	591151.621	2116365.022	CA 4	0 46 17.18	0.9999754	1303.4	- 30.2	1
JG1171140002	COYOTE 1895	36 59 56.82239	117 07 53.88875	6249630.790	458615.857	NV C	-0 16 47.37	0.9999211	3612	SC - 28.7	1
	COYOTE 1895	36 59 56.82239	117 07 53.88875	686457.891	2166291.324	CA 4	1 06 52.71	0.9999619	2612	SC - 28.7	1
JG1171440003	CRATER	36 59 34.10719	117 26 29.37190	685265.736	2138726.981	CA 4	0 55 47.23	0.9999612	1058.6	- 28.1	2
	CRATER	36 59 34.10719	117 26 29.37190	4248439.005	901638.471	NV W	0 41 13.64	1.0000272	1058.6	- 28.1	2
JG1171440002	CRATER CAIRN 1950	36 59 33.99746	117 26 29.44625	685262.324	2138725.197	CA 4	0 55 47.18	0.9999612	1059	SC - 28.1	4
	CRATER CAIRN 1950	36 59 33.99746	117 26 29.44625	4249435.600	901636.673	NV W	0 41 13.59	1.0000272	1059	SC - 28.1	1
JG1164120002	CRATER FLAT	36 48 49.75857	116 33 54.29731	6228973.270	509063.262	NV C	0 03 39.14	0.9999010	1127.6	- 29.0	1
JG1164120001	CRATER FLAT AZ MK	36 48 37.79852	116 36 17.26543	6228601.596	505520.301	NV C	0 02 13.46	0.9999004	973.69	- 29.0	1
JG1162210007	CROWN 1898	36 07 42.15330	116 02 44.22494	6153092.292	555899.886	NV C	0 21 58.24	0.9999385	799	SC - 29.8	1
	CROWN 1898	36 07 42.15330	116 02 44.22494	592309.449	2265897.840	CA 4	1 45 45.17	0.9999782	799	SC - 29.8	1
JG1164440002	CURRIE	36 59 49.58705	116 56 51.64626	6249343.622	474988.103	NV C	-0 10 8.78	0.9999077	1338.21	- 28.9	1
	CURRIE	36 59 49.58705	116 56 51.64626	686569.103	2182666.496	CA 4	1 13 27.80	0.9999617	1338.21	- 28.9	1
JG1163240001	DANTE	36 13 34.60790	116 43 31.76027	601503.962	2204464.556	CA 4	1 21 25.00	0.9999649	1739.7	- 30.7	1
JG1173120002	DARWIN	36 19 4.76585	117 35 56.49931	610176.385	2125797.673	CA 4	0 50 8.89	0.9999551	1823.2	- 29.7	1
JG1163310001	DAYTON HARRIS GRAVE MON 1950	36 12 26.87667	116 52 13.30311	599118.253	2191489.859	CA 4	1 16 13.85	0.9999673	79	SC - 30.9	2
JG1163310002	DAYTON HARRIS GRAVITY STA	36 12 24.76653	116 52 11.77508	599054.076	2191529.461	CA 4	1 16 14.76	0.9999673	78.23	- 30.9	2
JG1172140001	DEATH	36 29 59.31503	117 07 48.71124	631064.222	2167497.965	CA 4	1 06 55.80	0.9999432	2052.0	- 30.0	2
JG1162220001	DELL 1898	36 03 8.95709	116 02 37.90184	583897.869	2266315.014	CA 4	1 45 48.84	0.9999905	853	SC - 29.9	3
	DELL 1898	36 03 8.95709	116 02 37.90184	6144673.426	556111.896	NV C	0 21 59.57	0.9999388	853	SC - 29.9	3
JG1173220003	DIVIDE	36 01 28.55988	117 33 2.47562	577690.123	2130629.194	CA 4	0 51 52.71	0.9999954	2166.7	- 30.8	1
JG1162220002	DOME MOUNTAIN	36 01 3.23060	116 05 3.26846	579913.315	2262796.019	CA 4	1 44 22.22	0.9999967			4
	DOME MOUNTAIN	36 01 3.23060	116 05 3.26846	6140776.074	552497.009	NV C	0 20 32.98	0.9999339			4
JG1162440003	DRAIN	36 27 52.15625	116 25 3.01937	6190235.286	522330.611	NV C	0 08 53.10	0.9999061	687.6	- 29.8	2
	DRAIN	36 27 52.15625	116 25 3.01937	628626.081	2231433.452	CA 4	1 32 26.46	0.9999447	687.6	- 29.8	2
JG1161340002	DUNE	36 39 34.30642	116 27 57.01173	6211866.723	517953.824	NV C	0 07 11.67	0.9999040	900.0	- 29.5	2
JG1164420001	DUNE 1895	36 47 20.56089	116 50 17.30566	6226232.829	484696.293	NV C	-0 06 9.69	0.9999029	985	SC - 29.3	3
	DUNE 1895	36 47 20.56089	116 50 17.30566	663700.054	2192934.088	CA 4	1 17 23.06	0.9999448	985	SC - 29.3	3
JG1162310001	EAGLE MOUNTAIN	36 12 12.78531	116 21 10.65858	599841.018	2238014.173	CA 4	1 34 45.08	0.9999678			4
	EAGLE MOUNTAIN	36 12 12.78531	116 21 10.65858	6161300.080	528209.242	NV C	0 11 7.06	0.9999098			4
JG1162310002	EAGLE MOUNTAIN	36 12 40.68339	116 21 23.22430	600691.922	2237676.733	CA 4	1 34 37.59	0.9999668			4
	EAGLE MOUNTAIN	36 12 40.68339	116 21 23.22430	6162158.892	527892.618	NV C	0 10 59.76	0.9999096			4
JG1162310003	EAGLE MOUNTAIN USGS 1950	36 12 40.59793	116 21 23.23133	600689.284	2237676.630	CA 4	1 34 37.58	0.9999668	1161.0	- 30.4	3
	EAGLE MOUNTAIN USGS 1950	36 12 40.59793	116 21 23.23133	6162156.257	527892.451	NV C	0 10 59.75	0.9999096	1161.0	- 30.4	3
JG1164320001	ECHO	36 31 3.85444	116 45 17.20467	633773.436	2201076.051	CA 4	1 20 22.09	0.9999425	1532.4	- 30.0	2
	ECHO	36 31 3.85444	116 45 17.20467	6198118.446	482108.602	NV C	-0 03 8.76	0.9999808	1532.4	- 30.0	2
JG1162210002	END 1898	36 10 28.10048	116 06 13.11884	6188174.080	550647.205	NV C	0 19 56.38	0.9999816	850	SC - 29.7	2
	END 1898	36 10 28.10048	116 06 13.11884	597262.862	2260522.769	CA 4	1 43 40.54	0.9999716	850	SC - 29.7	2
JG1164430001	ENTER	36 49 54.97109	116 52 49.39093	6230989.823	480936.559	NV C	-0 07 41.23	0.9999045	1082.0	- 29.2	2
	ENTER	36 49 54.97109	116 52 49.39093	668374.469	2189059.453	CA 4	1 15 52.32	0.9999472	1082.0	- 29.2	2
JG1162330001	EVELYN	36 06 55.00404	116 23 8.24864	589969.553	2235344.429	CA 4	1 33 34.93	0.9999802	1506.9	- 30.8	2

* For conversion of meters to U.S. Survey Feet multiply the meters by 39.37/12.0 which is 3.28083333333 to 12 significant figures

* For conversion of meters to International Feet multiply the meters by 100.0/30.48 which is 3.28083989501 to 12 significant figures

LY 1966
JBLISHED AND PRINTED BY:
U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
WASHINGTON D.C.

36°45'
116°30'

HORIZONTAL CONTROL DATA

by the
Coast and Geodetic Survey
NORTH AMERICAN 1927 DATUM

QUAD 361164 STATION 1017
CALIF-NEV
LATITUDE 36°30' TO 37°00'
LONGITUDE 116°30' TO 117°00'
DIAGRAM NJ 11-11 DEATH VALLEY

DESCRIPTION OF TRIANGULATION STATION

NAME OF STATION: CRATER FLAT STATE: Nevada COUNTY: Nye

CHIEF OF PARTY: M.T.P. YEAR: 1949 described by J.T.S.

NOTE	DESCRIPTION	DISTANCES AND DIRECTIONS TO AZIMUTH MARK, REFERENCE MARKS AND PROMINENT OBJECTS WHICH CAN BE SEEN FROM THE GROUND AT THE STATION			
		OBJECT	BEARING	DISTANCE (feet)	DISTANCE (meters)	DIRECTION (° ' ")
None	Surface-station mark, underground station mark					
	IRON 1933					00 00 00.0
12a	Reference mark No.2		SW	17.760	5.413	134 10 55
11a	Azimuth mark 2 miles		W			144 57 07.1
12a	Reference mark No. 1		E	43.610	13.292	349 59 33

The station is on the most northeasterly of the small reddish volcanic knolls in Crater Flat, which is east of Bare Mountain. The station is 15 miles northwest of Lathrop Wells, 13 miles southeast of Beatty and 6.5 miles northeast of U.S.Highway 95. The mark is 9 meters from the north edge of the knoll and 6.5 meters northeast of a 3 foot cairn.

The mark is stamped CRATER FLAT 1949.

Reference mark No. 1 is on the northeast edge of the knoll and 1½ feet lower than the station. It is stamped CRATER FLAT NO 1 1949.

Reference mark No. 2 is 7 meters south of the north edge of the knoll, 2 feet east of a 3 foot cairn and 1 foot higher than the station. It is stamped CRATER FLAT NO 2 1949.

The azimuth mark is at road fork mentioned in the description. It is 19 meters north of the road fork, 6 meters east of the left fork, 5 meters west of the right fork and 1 meter south of a white witness post. The mark is stamped CRATER FLAT 1949.

To reach the station from the junction of U.S.Highway 95 and Nevada State Highway 58 in Beatty, go southeasterly on U.S.Highway 95 for 14.3 miles to an old shack off the road to the left and a well casing nearer the road. Here turn left onto dirt road and go 1.7 miles to the crest of the divide and Y fork. Keep left fork, go 0.25 mile to fork, keep right fork, northerly, for 3.9 miles to a fork. The azimuth mark for this station is in this fork. Take right fork and continue 1.6 miles. Here leave road and pick way cross country toward a reddish volcanic knoll on the right for 1.7 miles to base of knoll. From here pack to highest point and station site. The observing unit drove around the knoll on the north side and packed up the more gradual slope on the east.

ADJUSTED HORIZONTAL CONTROL DATA

NAME OF STATION: CRATER FLAT YEAR: 1949

STATE: Nevada LOCALITY: Beatty Area

Second ORDER Triangulation SOURCE: 0-9241 FIELD SHEET: NEV 30

DATUM DATA	COORDINATES (Feet)	PLANE AZIMUTH & GRID ANGLE	NAME
STATE: Nev ZONE: C CODE: 2702	x 529,995.81 y 751,221.95	84°00'39" + 0 03 41	AZIMUTH MARK
STATE: ZONE: CODE:	x y		

GEODETIC DATA	POSITION	DESCRIBING DATUM	ELEVATION
	LATITUDE 36°48'49.935" NORTH LONGITUDE 116 33 51.099 WEST		1,127.6 FEET ~~3,699~~ METERS

TO STATION	GEODETIC AZIMUTH (From south)	DISTANCE (Geodetic) FEET	DISTANCE METERS
AZIMUTH MARK	THIRD-ORDER 84°04'20.2		

VA Elev = 3698.9 (USGS 1973)

1,127.427 M

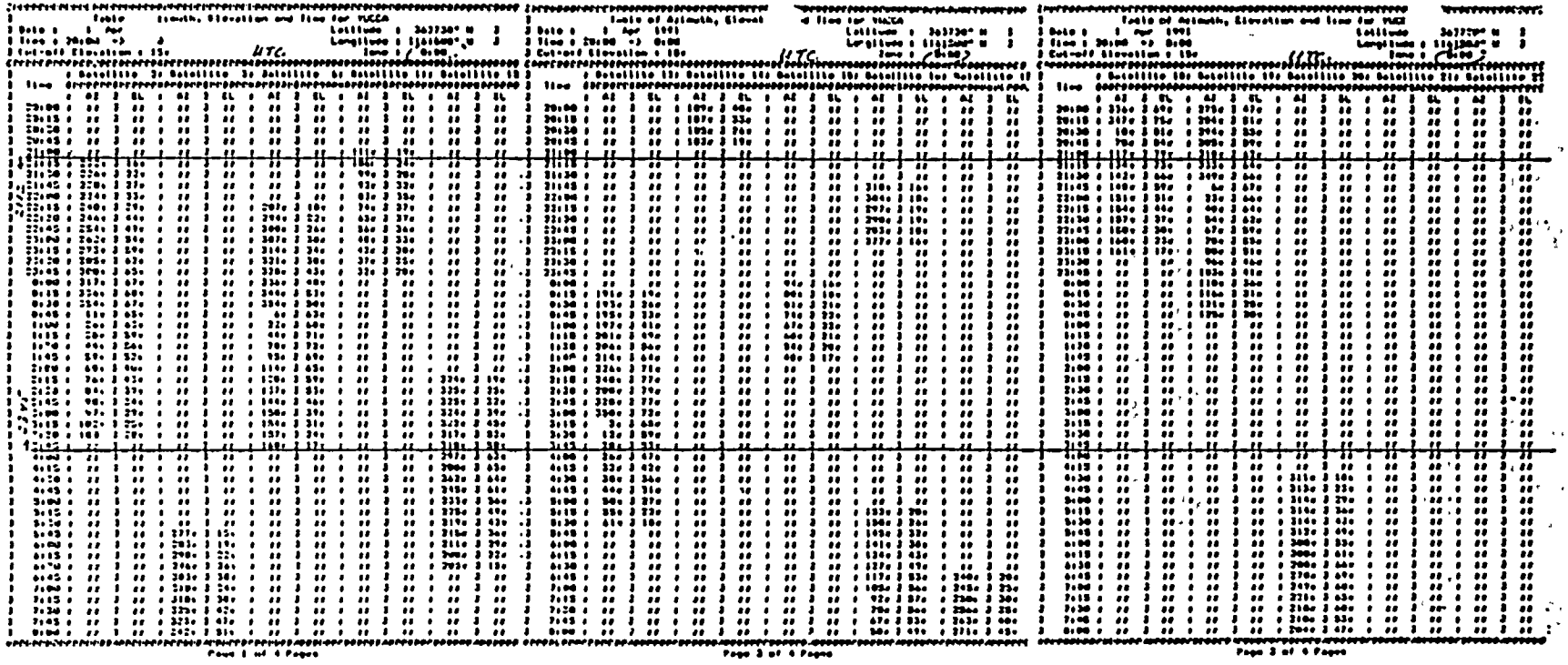
FILE COPY

JAN 1967

TRISW	36	48	10.27813	116	29	57.34432	-28.881
TRI4SE	36	50	57.49973	116	25	48.71797	-28.679
SOL NW	36	49	36.31997	116	28	43.43156	-28.795
YUC NW	36	51	8.40974	116	27	19.00189	-28.699
FRAN NW	36	49	31.20647	116	25	20.62809	-28.732
TAGE NW	36	44	3.72561	116	28	39.70555	-29.027
CRATER	36	48	41.75857	116	33	54.29731	-28.921

GEOID SEPARATIONS

GEOID 4 - PROGRAM



SATELLITE PREDICT
YUCCA MTN

COORDINATE ADJUSTMENT

COORDINATE ADJUSTMENT SUMMARY
NETWORK = YUCCA
TIME = Tue Apr 16 08:42:36 1991

TRIMNET FINAL ADJUSTMENT OF YUCCA GPS NETWORK

Datum = NAD-83
Coordinate System = Geographic
Zone = Global

Network Adjustment Constraints:
1 fixed coordinates in y
1 fixed coordinates in x
1 fixed coordinates in h

POINT	NAME	OLD COORDS	ADJUST	NEW COORDS	SIGMA
1	LAT=	36x 48' 10.289655"	-0.011269"	36x 48' 10.278386"	0.008009m
0101	LON=	116x 29' 57.560424"	+0.214725"	116x 29' 57.345699"	0.005743m
	HEIGHT=	1089.6280m	-31.5035m	1058.1245m	0.008748m

=SCROLL PgUp PgDn

COORDINATE ADJUSTMENT

	LAT=	36x 50' 57.510556"	-0.010467"	36x 50' 57.500089"	0.009317m
0205	LON=	116x 25' 48.935215"	+0.215594"	116x 25' 48.719621"	0.006670m
	HEIGHT=	1180.0259m	-31.4873m	1148.5386m	0.014333m
3	LAT=	36x 49' 36.328310"	-0.008306"	36x 49' 36.320004"	0.007735m
0309	LON=	116x 28' 43.649863"	+0.216544"	116x 28' 43.433319"	0.005553m
	HEIGHT=	1192.3060m	+0.0000m	1192.3060m	0.000000m
4	LAT=	36x 51' 08.420466"	-0.010511"	36x 51' 08.409955"	0.010304m
0413	LON=	116x 27' 19.218695"	+0.215546"	116x 27' 19.003149"	0.007380m
	HEIGHT=	1341.8333m	-31.4880m	1310.3453m	0.017536m
5	LAT=	36x 49' 31.214957"	-0.008089"	36x 49' 31.206868"	0.009661m
0517	LON=	116x 25' 20.847393"	+0.216517"	116x 25' 20.630877"	0.006913m
	HEIGHT=	1141.7125m	-31.4699m	1110.2426m	0.014711m
6	LAT=	36x 44' 03.735345"	-0.009189"	36x 44' 03.726156"	0.009828m
0621	LON=	116x 28' 39.923593"	+0.216137"	116x 28' 39.707454"	0.007068m
	HEIGHT=	922.8504m	-31.4730m	891.3774m	0.015777m

=SCROLL PgUp PgDn

COORDINATE ADJUSTMENT

7	LAT=	36x 48' 49.758570"	+0.000000"	36x 48' 49.758570"	0.000000m
9999	LON=	116x 33' 54.297310"	+0.000000"	116x 33' 54.297310"	0.000000m
	HEIGHT=	1129.8499m	-31.5034m	1098.3465m	0.015917m

QUADRILATERA
O-POINT
ELLIPSOID HEI

QUADRILATERAL O-POINTS

POINT	ORTHO HT	GEOID SEP	ELLIP HT.
RENCH 1 SW (0101)	1087.096	-28.881	1058.215 1058.124 1058.120 (dh=-0.00 1058.257 (dh=0.03
RENCH 14 SE (0205)	1177.169	-28.679	1148.490 1148.539 1148.524 (dh=0.03 1148.614 (dh=0.12
OLITARIO NW (0309)	1221.101	-28.795	1192.306 (Held, (Held)
UCCA RIDGE NW (0413)	1338.994	-28.699	1310.295 1310.345 1310.329 (dh=-0.0 1310.599 (dh=-0.03
RAN RIDGE NW (0517)	1138.993	-28.732	1110.261 1110.243 1110.247 (dh=0.00 1110.228 (dh=-0.03 1110.399 (dh=-0.03
STAGE NW (0621)	—	-29.027	891.377 891.366 (dh=-0.01 891.381 (dh=0.00 891.513 (dh=-0.01
CRATER FLAT (9999)	1127.427	-28.921	1098.506 1098.346 1098.337 (dh=-0.00 1098.335 (dh=-0.01

Blue ellipsoidal heights are the results obtained by computations of different networks, holding Su
ed ellipsoidal heights are obtained by holding the derived ellipsoidal height
for SCLITARIO NW

Black ellipsoidal heights are obtained by applying the geoid separation from the NGS GEOID4 program to the trigonometric level elevations established for

	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
Tracking	1565	1380	657	388	869	470	385	515	905
total L1	1565	1370	657	388	869	470	385	515	905
cont L1									

SV Selection mode = AUTOMATIC
El ation mask = 15 [degrees] Minimum # of SVs = 3

	Best PDOP Position [1.9]	Mean Position [3255]
3D Position		
Latitude:	36:51'08.65460" N	36:51'08.39414" N
Longitude:	116:27'18.70442" W	116:27'18.85172" W
Height [m]:	1354.5	1315.5
2D Position	Best PDOP Position [1.6]	Mean Position [1509]
Latitude:	36:51'08.30867" N	36:51'08.49379" N
Longitude:	116:27'18.98086" W	116:27'18.74163" W

STATION (mark) 2

input data file 1 : c:\tnl\yucca\04130881.dat
antenna height(m) 1.581

met values used: pressure(mb) 1013.0
temperature(deg C) 20.0
relative humidity(%) 50.0

x (m)	-2276895.760	lat (dms)	N	36	51	8.40975
y (m)	-4575686.947	elon (dms)	E	243	32	40.99810
z (m)	3805079.050	wlon (dms)	W	116	27	19.00190
		ht (m)		1310.5002		

slope distance (m) 10691.1920 sigma (m) .022

	Forward	Backward
normal section azimuth (dms)	66 23 35.47	246 27 32.45
vertical angle (dms)	1 5 17.55	0 -1 14.40

east(m)	north(m)	up(m)
9794.734	4280.601	203.043

Delta lat(dms)	0	2	18.65118
Delta lon(dms)	0	6	35.29541
Delta ht(m)	211.9942		

Vector covariance matrix (m**2) :

	dx	dy	dz
dx	.617760682440D-03		
dy	.591624752720D-03	.114107018332D-02	
dz	-.393468576039D-03	-.656468065637D-03	.105955712645D-02

correlations:

	dx	dy	dz	trop	bias 1	bias 2	bias 3	bias 4	bias 5	bias 6	bias 7	bias 8
dx	1.000											
dy	.705	1.000										
dz	-.486	-.597	1.000									
trop	.000	.000	.000	1.000								
bias 1	.000	.000	.000	.000	1.000							
bias 2	.000	.000	.000	.000	.000	1.000						
bias 3	.000	.000	.000	.000	.000	.000	1.000					
bias 4	.000	.000	.000	.000	.000	.000	.000	1.000				

```
bias 7    .000    .000    .000    .000    .000    .000    .000    .000    .000    .000
 1.000
bias 8    .000    .000    .000    .000    .000    .000    .000    .000    .000    .000
  .000   1.000

                          Solution        Sigma       Sensitivity to 10 meter error
                                                        in station 1 coordinates
    dx (m)                9835.085         .025          9.999          .002         -.002
    dy (m)               -2231.523         .034          -.003        10.001          .000
    dz (m)                3548.660         .033           .002          .000        10.000
  trop (%)                    .000         .000           .000          .000          .000
bias 1 (cycle)                .000         .000           .000          .000          .000
bias 2 (cycle)                .000         .000           .000          .000          .000
bias 3 (cycle)                .000         .000           .000          .000          .000
bias 4 (cycle)              -1.000         .000           .000          .000          .000
bias 5 (cycle)              -1.000         .000           .000          .000          .000
bias 6 (cycle)              -1.000         .000           .000          .000          .000
bias 7 (cycle)                .000         .000           .000          .000          .000
bias 8 (cycle)                .000         .000           .000          .000          .000

 Results of integer bias search:
              .55671              4.40988              4.77436

                0                    0                    0
                0                    0                    0
                0                   -1                    1
                0                   -1                    1
                0                   -1                    1
                0                    0                    0
                0                    0                    0
Ratio sum-of-squares(2) to sum-of-squares(1)        7.92

 Interval between epochs (sec)  150.0
 Epoch increment     5
 Number of measurements used in solution    264
 Number of measurements rejected             14
 RMS (cycles)          .067
 RDOP(norm to 60 sec)(m/cycle)         .027

 Elevation mask (deg)     15.0
 Edit multiplier    3.5
 Modified Hopfield troposphere model used

Best tracking C/A code positions
Station  1
Pdop          2.4
  x (m)     -2286727.716       lat  (dms)  N    36    48  49.81012
  y (m)     -4573454.255       elon (dms)  E   243    26   5.79452
  z (m)      3801530.546       wlon (dms)  W   116    33  54.20548
                               ht (m)          1096.6416
clock offset(s)          .50523890D-03
freq  offset(s/s)       -.23171393D-06

 Code calibration(m)      Carrier calibration(m)
0 -  1          -.0981                  -.0004
0 -  2           .0068                  -.0001
0    3          -.2446                   .0033
0 -  4           .8735                  -.0002
0 -  5          1.9004                  -.0007
0 -  6          1.7813                  -.0005
0 -  7          1.7036                   .0030
Station  2
Pdop          2.4
  x (m)     -2276892.601       lat  (dms)  N    36    51   8.45994
```

z (m)	3805079.433	wlon (dms) W	116 . 27 . 18.90104
		ht (m)	1309.0732
clock offset(s)		.11441652D-03	
freq offset(s/s)		-.31177500D-06	

Code calibration(m)		Carrier calibration(m)
0 - 1	.2378	.0011
0 - 2	.1714	.0008
0 - 3	.0825	.0006
0 - 4	.4756	-.0001
0 - 5	.4800	.0007
0 - 6	.5879	.0005
0 - 7	.3638	.0000

TRIMBLE NAVIGATION, LTD
585 NORTH MARY AVENUE
SUNNYVALE, CALIFORNIA 94086
U.S.A.

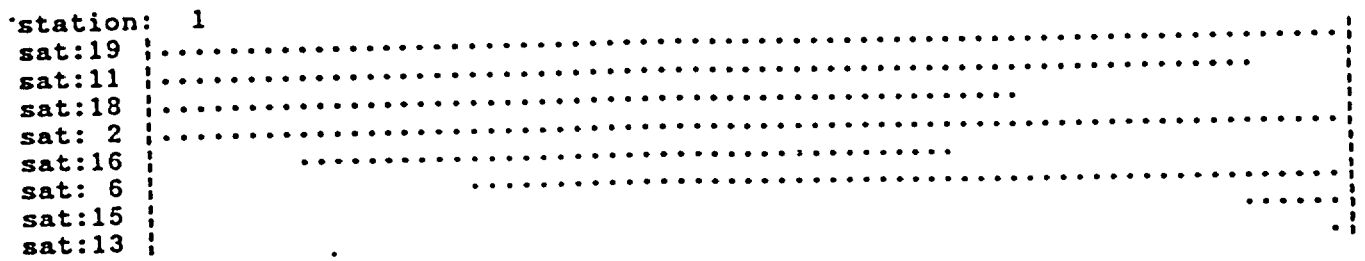
PROGRAM TRIMVEC
GPS RELATIVE POSITIONING SOLUTION
VERSION 90.060

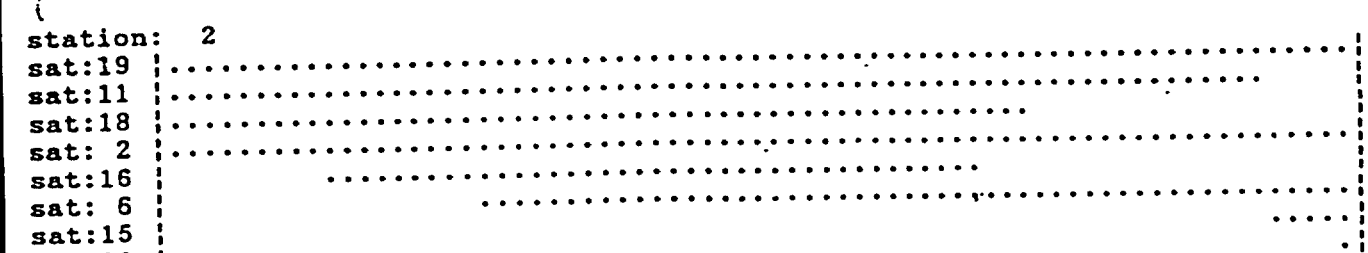
File name: c:\tnl\yucout2\05130881.fix
Coordinate system - WGS-84

Type solution: Double difference

Start date/time: 1991/ 3/29 21:26: 0. day of year 88 tow 509160.
Stop date/time: 1991/ 3/30 0:20:30. day of year 89 tow 519630.

Data available





Ephemeris file used: c:\tnl\yucca\02050881.eph

SATELLITE	IODE	HEALTH	WEEK NO.	TOW(sec)	URA(m)
19	229	0	585	508890.00	2.0
11	52	0	585	508920.00	2.0
18	120	0	585	508890.00	2.0
2	39	0	585	509100.00	2.8
16	188	0	585	510510.00	2.0
6	227	0	585	511950.00	4.0
15	228	0	585	518940.00	4.0
13	143	0	585	519600.00	2.0

Broadcast satellite clock correction values

prn	af0	af1	af2	toc
19	.1214118674D-04	.1136868377D-11	.0000000000D+00	.5071D+06
11	-.2687606029D-03	-.4206412996D-11	.0000000000D+00	.5148D+06
18	.6529502571D-05	.6821210263D-12	.0000000000D+00	.5071D+06
2	-.2990895882D-04	-.1591615728D-11	.0000000000D+00	.5112D+06
16	.1708138734D-04	.2046363079D-11	.0000000000D+00	.5112D+06
6	-.2326816320D-03	-.1466560207D-10	.0000000000D+00	.5184D+06
15	.5398038775D-04	.3410605132D-11	.0000000000D+00	.5256D+06

ht (m) 1146.9803

clock offset(s) .19801800D-03
freq offset(s/s) -.35480440D-06

Code calibration(m)		Carrier calibration(m)
0 - 1	-.2197	-.0006
0 - 2	-.3496	-.0007
0 - 3	-.4253	-.0009
0 - 4	.3135	-.0003
0 - 5	-.0137	-.0011
0 - 6	-.2402	-.0011
0 - 7	-.3428	-.0013

TRIMBLE NAVIGATION, LTD.
585 NORTH MARY AVENUE
SUNNYVALE, CALIFORNIA 94086
U.S.A.

PROGRAM TRIMVEC
GPS RELATIVE POSITIONING SOLUTION
VERSION 90.060

File name: c:\tnl\yucca2\99130881.fix
Coordinate system - WGS-84

Type solution: Double difference

Start date/time: 1991/ 3/29 21:25:30. day of year 88 tow 509130.
Stop date/time: 1991/ 3/30 0:20: 0. day of year 89 tow 519600.

Data available

station: 1
sat:19 |.....|
sat:11 |.....|
sat:18 |.....|
sat: 2 |.....|
sat:16 |.....|
sat: 6 |.....|
sat:15 |.....|
sat:13 |.....|

station: 2
sat:19 |.....|
sat:11 |.....|
sat:18 |.....|
sat: 2 |.....|
sat:16 |.....|
sat: 6 |.....|
sat:15 |.....|
sat:13 |.....|

Ephemeris file used: c:\tnl\yucca\99990881.eph

SATELLITE	IODE	HEALTH	WEEK NO.	TOW(sec)	URA(m)
19	229	0	585	508860.00	2.0
11	52	0	585	508800.00	2.0
18	120	0	585	508860.00	2.0
2	39	0	585	509070.00	4.0
16	188	0	585	510510.00	2.0
6	227	0	585	511890.00	4.0
15	228	0	585	518970.00	4.0
13	143	0	585	519600.00	2.0

Broadcast satellite clock correction values

prn	af0	af1	af2	toc
19	.1214118674D-04	.1136868377D-11	.0000000000D+00	.5071D+06
11	-.2687606029D-03	-.4206412996D-11	.0000000000D+00	.5148D+06
18	.6529502571D-05	.6821210263D-12	.0000000000D+00	.5071D+06
2	-.2390895892D-04	-.1591615728D-11	.0000000000D+00	.5112D+06
16	.1703183731D-04	.2046363079D-11	.0000000000D+00	.5112D+06
6	-.2326816320D-03	-.1466560207D-10	.0000000000D+00	.5184D+06
13	.5298038775D-04	.3410605132D-11	.0000000000D+00	.5256D+06

```
Message file for station 1
.....
tation ID: 9999 Session =: 088-1      Mar 29, 1991 21:20
eference Position - LOW ACCURACY:
at.  =  0:00'00.000" N  Long. =    0:00'00.000" W  Height = 0.0  [meters]
n  nna height    =  1.4870  [meters]  (entered in the field in meters)
ong station name:  CRATER

eceiver serial = = 248
ntenna serial  = = 73  (entered in the office)
P Software = 4.30      SP Software = 4.20      Download Software = 2.05.00

urvey schedule:  Start time = 21:24  Stop time = 03:57
ata-logging start time = 21:25
ata-logging stop  time = 03:57

racking    SV  2   SV  6   SV 11   SV 12   SV 13   SV 15   SV 16   SV 18   SV 19
otal L1     1568    1384     655     391     870     466     388     512     902
ont  L1     1568    1384     655     391     870     466     388     512     902

V Selection mode = AUTOMATIC
levation mask    = 15     [degrees]   Minimum = of SVs  =  3

D Position      Best PDOP Position [ 2.3]      Mean Position [3274]
atitude:         36:48'49.81197" N              36:48'49.73770" N
ongitude:       116:33'54.21808" W             116:33'54.14805" W
eight [m]:              1097.2                         1103.1

D Position      Best PDOP Position [ 1.6]      Mean Position [1573]
atitude:         36:48'49.66177" N              36:48'50.20000" N
o  itude:       116:33'54.30314" W             116:33'53.60859" W
.....

Origin of station 1 coordinates : User input

 STATION (mark)  1

input data file  1 : c:\tnl\yucca\99990681.dat
 antenna height(m)     1.475

met values used:  pressure(mb)          1013.0
                  temperature(deg C)    20.0
                  relative humidity(%)  50.0

   x (m)     -2286730.846      lat  (dms)  N   36   48  49.75857
   y (m)     -4573455.423      elon (dms)  E  243   26   5.70269
   z (m)      3801530.390      wlon (dms)  W  116   33  54.29731
                               ht (m)          1098.5060


Message file for station 2
.....
.tation ID: 0413  Session =: 088-1      Mar 29, 1991 21:20
'eference Position - LOW ACCURACY:
.at.  =  0:00'00.000" N  Long. =    0:00'00.000" W  Height = 0.0  [meters]
.n  nna height    =  1.5920  [meters]  (entered in the field in meters)
.on. station name:  YUCNW

:eceiver serial = = 244
.ntenna serial  = = 70  (entered in the office)
:P Software = 4.30     SP Software = 4.20      Download Software = 2.05.00

:urvey schedule:  Start time = 21:24  Stop time = 03:57
```

TRIMBLE NAVIGATION, LTD
585 NORTH MARY AVENUE
SUNNYVALE, CALIFORNIA 94086
U.S.A.

PROGRAM TRIMVEC
GPS RELATIVE POSITIONING SOLUTION
VERSION 90.060

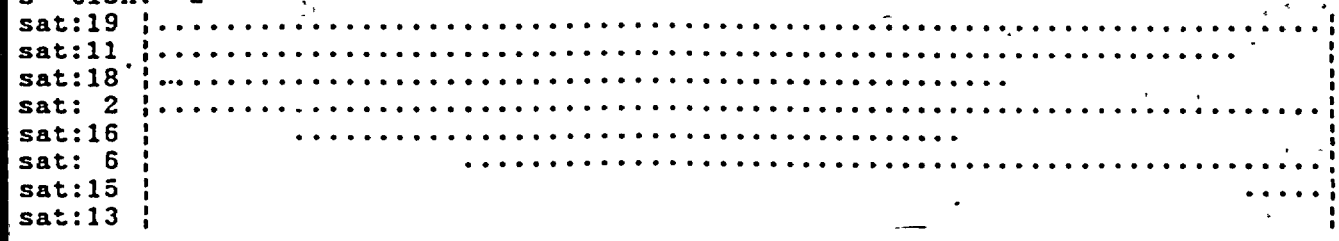
File name: c:\tnl\yucout2\99050881.fix
Coordinate system - WGS-84

Type solution: Double difference

Start date/time: 1991/ 3/29 21:25:30. day of year 88 tow 509130.
Stop date/time: 1991/ 3/30 0:20: 0. day of year 89 tow 519600.

Data available

• FIX SOLUTION FILES
DETAILED VERSIONS



Ephemeris file used: c:\tnl\yucca\99990881.eph

SATELLITE	IODE	HEALTH	WEEK NO.	TOW(sec)	URA(m)
19	229	0	585	508860.00	2.0
11	52	0	585	508800.00	2.0
18	120	0	585	508860.00	2.0
2	39	0	585	509070.00	4.0
16	188	0	585	510510.00	2.0
6	227	0	585	511890.00	4.0
15	228	0	585	518970.00	4.0
13	143	0	585	519600.00	2.0

Broadcast satellite clock correction values

prn	af0	af1	af2	toc
19	.1214118674D-04	.1136868377D-11	.0000000000D+00	.5071D+06
11	-.2687606029D-03	-.4206412996D-11	.0000000000D+00	.5148D+06
18	.6529502571D-05	.6821210263D-12	.0000000000D+00	.5071D+06
2	-.2990895882D-04	-.1591615728D-11	.0000000000D+00	.5112D+06
16	.1708133734D-04	.2046363079D-11	.0000000000D+00	.5112D+06
6	-.2326816320D-03	-.1466560207D-10	.0000000000D+00	.5184D+06
15	.5398038775D-04	.3410605132D-11	.0000000000D+00	.5256D+06
13	.5309619009D-03	.1705302566D-11	.0000000000D+00	.5256D+06

```
Message file for station 1
.....
Station ID: 9999  Session #: 088-1      Mar 29, 1991 21:20
Reference Position - LOW ACCURACY:
Lat.  =  0:00'00.000" N  Long. =   0:00'00.000" W  Height = 0.0  [meters]
Antenna height   =  1.4870  [meters]  (entered in the field in meters)
Lo_ station name:  CRATER

Receiver serial # = 248
Antenna serial  # = 73  (entered in the office)
NP Software = 4.30     SP Software = 4.20     Download Software = 2.05.00

Survey schedule:  Start time = 21:24  Stop time = 03:57
Data-logging start time = 21:25
Data-logging stop  time = 03:57

Tracking   SV  2  SV  6  SV 11  SV 12  SV 13  SV 15  SV 16  SV 18  SV 19
total L1    1568   1384    655    391    870    466    388    512    902
cont  L1    1568   1384    655    391    870    466    388    512    902

SV Selection mode = AUTOMATIC
Elevation mask    = 15     [degrees]   Minimum # of SVs  =  3

3D Position      Best PDOP Position [ 2.3]     Mean Position [3274]
Latitude:         36:48'49.81197" N             36:48'49.73770" N
Longitude:       116:33'54.21808" W            116:33'54.14805" W
Height [m]:              1097.2                        1103.1

2D Position      Best PDOP Position [ 1.6]     Mean Position [1573]
Latitude:         36:48'49.66177" N             36:48'50.20000" N
Longitude:       116:33'54.30314" W            116:33'53.60859" W

.....

Origin of station 1 coordinates : User input

  STATION (mark)  1

input data file  1 : c:\tnl\yucca\99990881.dat
 antenna height(m)     1.475

met values used:  pressure(mb)          1013.0
                  temperature(deg C)      20.0
                  relative humidity(%)    50.0

   x (m)     -2286730.846      lat  (dms)  N    36    48  49.75857
   y (m)     -4573455.423      elon (dms)  E   243    26   5.70269
   z (m)      3801530.390      wlon (dms)  W   116    33  54.29731
                               ht (m)          1098.5060

Message file for station 2
.....
Station ID: 0205  Session #: 088-1      Mar 29, 1991 21:21
Reference Position - LOW ACCURACY:
Lat.  =  0:00'00.000" N  Long. =   0:00'00.000" W  Height = 0.0  [meters]
Antenna height   =  1.5490  [meters]  (entered in the field in meters)
Lo   station name:  TR14SE

Receiver serial # = 245
Antenna serial  # = 71  (entered in the office)
NP Software = 4.30     SP Software = 4.20     Download Software = 2.05.00

Survey schedule:  Start time = 21:24  Stop time = 03:57
Data-logging start time = 21:25
```

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
total L1	1566	1380	652	388	869	472	384	510	880
cont L1	1566	1380	652	388	869	471	384	510	880

SV Selection mode = AUTOMATIC
El ation mask = 15 [degrees] Minimum # of SVs = 3

3D Position	Best PDOP Position [2.3]	Mean Position [3193]
Latitude:	36:50'57.60979" N	36:50'57.48553" N
Longitude:	116:25'48.55788" W	116:25'48.57408" W
Height [m]:	1156.5	1153.2

2D Position	Best PDOP Position [1.6]	Mean Position [1544]
Latitude:	36:50'57.42743" N	36:50'57.60956" N
Longitude:	116:25'48.72832" W	116:25'48.43208" W

.....

STATION (mark) 2

input data file 1 : c:\tnl\yucca\02050881.dat
antenna height(m) 1.538

met values used: pressure(mb) 1013.0
temperature(deg C) 20.0
relative humidity(%) 50.0

x (m)	-2274924.887	lat (dms)	N	36	50	57.49971
y (m)	-4576747.834	elon (dms)	E	243	34	11.28206
z (m)	3804712.836	wlon (dms)	W	116	25	48.71794
		ht (m)		1148.6919		

slope distance (m) 12662.8826 sigma (m) .026

	Forward	Backward
normal section azimuth (dms)	71 50 18.28	251 55 9.37
vertical angle (dms)	0 10 12.92	0 0-17.84

east(m)	north(m)	up(m)
12031.980	3946.978	37.628

Delta lat(dms)	0	2	7.74114
Delta lon(dms)	0	8	5.57937
Delta ht(m)	50.1859		

Vector covariance matrix (m**2) :

	dx	dy	dz
dx	.882791605555D-03		
dy	.826218737105D-03	.152973935950D-02	
dz	-.573617210850D-03	-.928078133856D-03	.152503847253D-02

correlations:

	dx	dy	dz	trop	bias 1	bias 2	bias 3	bias 4	bias 5	bias 6	bias 7	bias 8
dx	1.000											
dy	.711	1.000										
dz	-.494	-.608	1.000									
trop	.000	.000	.000	1.000								
bias 1	.000	.000	.000	.000	1.000							
bias 2	.000	.000	.000	.000	.000	1.000						
bias 3	.000	.000	.000	.000	.000	.000	1.000					
bias 4	.000	.000	.000	.000	.000	.000	.000	1.000				
bias 5	.000	.000	.000	.000	.000	.000	.000	.000	1.000			

```
bias 7    .000    .000    .000    .000    .000    .000    .000    .000    .000    .000
 1.000
bias 8    .000    .000    .000    .000    .000    .000    .000    .000    .000    .000
   .000  1.000
```

	Solution	Sigma	Sensitivity to 10 meter error in station 1 coordinates		
dx (m)	11805.959	.030	9.999	.003	-.002
dy (m)	-3292.410	.039	-.004	10.001	.000
dz (m)	3182.446	.039	.003	-.001	10.000
trop (%)	.000	.000	.000	.000	.000
bias 1 (cycle)	.000	.000	.000	.000	.000
bias 2 (cycle)	.000	.000	.000	.000	.000
bias 3 (cycle)	.000	.000	.000	.000	.000
bias 4 (cycle)	-1.000	.000	.000	.000	.000
bias 5 (cycle)	.000	.000	.000	.000	.000
bias 6 (cycle)	-1.000	.000	.000	.000	.000
bias 7 (cycle)	.000	.000	.000	.000	.000
bias 8 (cycle)	.000	.000	.000	.000	.000

Results of integer bias search:

.84110	4.49346	4.70400
0	0	0
0	0	0
0	-1	1
0	-1	1
0	-1	1
0	0	0
0	0	0

Ratio sum-of-squares(2) to sum-of-squares(1) 5.34

```
   erval between epochs (sec)  150.0
 Epoch increment      5
 Number of measurements used in solution    269
 Number of measurements rejected              7
 RMS (cycles)          .083
 RDOP(norm to 60 sec)(m/cycle)          .027

 Elevation mask (deg)     15.0
 Edit multiplier     3.5
 Modified Hopfield troposphere model used

Best tracking C/A code positions
Station  1
Pdop          2.4
  x (m)     -2286727.716      lat  (dms)  N    36    48  49.81012
  y (m)     -4573454.255      elon (dms)  E   243    26   5.79452
  z (m)      3801530.546      wlon (dms)  W   116    33  54.20548
                              ht (m)          1096.6416
clock offset(s)          .50523890D-03
freq  offset(s/s)       -.23171393D-06

 Code calibration(m)     Carrier calibration(m)
G -  1        -.0931                  -.0004
G -  2         .0062                  -.0001
G -  3        -.2446                   .0033
G -  4         .8735                  -.0002
G -  5        1.9004                  -.0007
G -  6        1.7813                  -.0005
G -  7        1.7036                   .0030
Station  2
Pdop          2.4
  x (m)     -2274921.787      lat  (dms)  N    37    50  37.51117
  y (m)     -4576746.631      elon (dms)  E   243    34  11.37246
```

```
Message file for station 1
.....
tation ID: 0205  Session =: 088-1      Mar 29, 1991 21:21
eference Position - LOW ACCURACY:
a    =  0:00'00.000" N  Long. =    0:00'00.000" W  Height = 0.0  [meters]
ntenna height    =  1.5390  [meters]  (entered in the field in meters)
ong station name:  TR14SE

cceiver serial = = 245
ntenna serial  = = 71  (entered in the office)
P Software = 4.30     SP Software = 4.20      Download Software = 2.05.00

urvey schedule:  Start time = 21:24  Stop time = 03:57
ata-logging start time = 21:25
ata-logging stop  time = 03:57

racking    SV  2   SV  6   SV 11   SV 12   SV 13   SV 15   SV 16   SV 18   SV 19
otal L1     1566    1380     652     388     869     472     384     510     880
ont  L1     1566    1380     652     388     869     471     384     510     880

V Selection mode = AUTOMATIC
levation mask    = 15     [degrees]   Minimum = of SVs  =  3

D Position       Best PDOP Position [ 2.3]      Mean Position [3193]
atitude:          36:50'57.60979" N              36:50'57.48353" N
ongitude:        116:25'48.55788" W             116:25'48.57408" W
eight [m]:              1156.5                         1153.2

D Position       Best PDOP Position [ 1.6]      Mean Position [1544]
a  itude:         36:50'57.42743" N              36:50'57.60956" N
.c  itude:       116:25'48.72832" W             116:25'48.43208" W
.....

Origin of station 1 coordinates : Trimvec pseudo range solution

  STATION (mark)  1

input data file  1 : c:\tnl\yucca\02050881.dat
 antenna height(m)     1.538

met values used:  pressure(mb)          1013.0
                  temperature(deg C)    20.0
                  relative humidity(%)  50.0

  x (m)      -2274928.862      lat  (dms)  N   36   50  57.66000
  y (m)      -4576760.007      elon (dms)  E  243   34  11.35706
  z (m)       3804728.507      wlon (dms)  W  116   25  48.64294
                               ht (m)          1168.2295

Message file for station 2
.....
Station ID: 0413  Session =: 088-1      Mar 29, 1991 21:20
Reference Position - LOW ACCURACY:
Lat    =  0:00'00.000" N  Long. =    0:00'00.000" W  Height = 0.0  [meters]
An  ana height    =  1.5920  [meters]  (entered in the field in meters)
Long station name:  YUCNW

Receiver serial = = 244
Antenna serial  = = 70  (entered in the office)
VP Software = 4.30     SP Software = 4.20      Download Software = 2.05.00
```

Data-logging stop time = 03:57

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
total L1	1565	1380	657	388	869	470	385	515	905
cont L1	1565	1370	657	388	869	470	385	515	905

SV selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

3D Position	Best PDOP Position [1.9]	Mean Position [3255]
Latitude:	36:51'08.65460" N	36:51'08.39414" N
Longitude:	116:27'18.70442" W	116:27'18.85172" W
Height [m]:	1354.5	1315.5
2D Position	Best PDOP Position [1.6]	Mean Position [1509]
Latitude:	36:51'08.30867" N	36:51'08.49379" N
Longitude:	116:27'18.98086" W	116:27'18.74163" W

.....

STATION (mark) 2

input data file 1 : c:\tnl\yucca\04130381.dat
antenna height(m) 1.581

met values used: pressure(mb) 1013.0
temperature(deg C) 20.0
relative humidity(%) 50.0

x (m)	-2276899.734	lat (dms)	N	36 51	8.56997
y (m)	-4575699.119	elon (dms)	E	243 32	41.07336
z (m)	3805094.719	wlon (dms)	W	116 27	18.92664
		ht (m)		1330.0344	

slope distance (m) 2268.0236 sigma (m) .006

	Forward	Backward
normal section azimuth (dms)	278 33 31.44	98 32 37.29
vertical angle (dms)	4 4 51.29	-0 -4 17.69

east(m)	north(m)	up(m)	-2237.080	336.679	161.404

Delta lat(dms) 0 0 10.90998
Delta lon(dms) 0 -1 30.28370
Delta ht(m) 161.8049

Vector covariance matrix (m**2) :

	dx	dy	dz
dx	.372028955875D-04		
dy	.347877355780D-04	.878612719362D-04	
dz	-.220636711624D-04	-.381027418423D-04	.624891599821D-04

correlations:

	dx	dy	dz	trop	bias 1	bias 2	bias 3	bias 4	bias 5	bias 6	bias 7	bias 8
dx	1.000											
dy	.692	1.000										
dz	-.458	-.385	1.000									
trop	.000	.000	.000	1.000								
bias 1	.000	.000	.000	.000	1.000							
bias 2	.000	.000	.000	.000	.000	1.000						
bias 3	.000	.000	.000	.000	.000	.000	1.000					

```
bias 6    .000    .000    .000    .000    .000    .000    .000    .000    .000    .000
bias 7    .000    .000    .000    .000    .000    .000    .000    .000    .000    .000
 1.000
bias 8    .000    .000    .000    .000    .000    .000    .000    .000    .000    .000
  .000   1.000
```

	Solution	Sigma	Sensitivity to 10 meter error in station 1 coordinates		
dx (m)	-1970.872	.006	10.000	-.001	.000
dy (m)	1060.888	.008	.001	10.000	.000
dz (m)	366.212	.008	.000	.000	10.000
trop (%)	.000	.000	.000	.000	.000
bias 1 (cycle)	.000	.000	.000	.000	.000
bias 2 (cycle)	.000	.000	.000	.000	.000
bias 3 (cycle)	.000	.000	.000	.000	.000
bias 4 (cycle)	.000	.000	.000	.000	.000
bias 5 (cycle)	.000	.000	.000	.000	.000
bias 6 (cycle)	.000	.000	.000	.000	.000
bias 7 (cycle)	.000	.000	.000	.000	.000
bias 8 (cycle)	.000	.000	.000	.000	.000

```
-Results of integer bias search:
          .06203              4.08527              4.09192

            0                    0                    0
            0                    0                    0
            0                    1                   -1
            0                    1                   -1
            0                    1                   -1
            0                    0                    0
            0                    0                    0
P ~io sum-of-squares(2) to sum-of-squares(1)      65.86

 Interval between epochs (sec)  150.0
 Epoch increment     5
 Number of measurements used in solution   274
 Number of measurements rejected             4
 RMS (cycles)          .024
 RDOP(norm to 60 sec)(m/cycle)          .026

 Elevation mask (deg)     15.0
 Edit multiplier    3.5
 Modified Hopfield troposphere model used

 Best tracking C/A code positions
 Station  1
 Pdop          2.4
   x (m)    -2274921.787      lat  (dms)  N    36    50   57.54117
   y (m)    -4576746.631      elon (dms)  E   243    34   11.37246
   z (m)     3804712.593      wlon (dms)  W   116    25   48.62754
                              ht (m)          1146.5803

 clock offset(s)          .19801800D-03
 freq  offset(s/s)       -.35486440D-06

  Code calibration(m)      Carrier calibration(m)
 0 -  1        -.2197                  -.0006
 0    2        -.3496                  -.0007
 0    3        -.4253                  -.0009
 0 -  4         .3135                  -.0003
 0 -  5        -.0137                  -.0011
 0 -  6        -.2402                  -.0011
 0 -  7        -.3428                  -.0013
 Station  2
 Pdop          2.1
```

z (m)	3805079.433	wlon (dms)	W 116 27 18.90104
		ht (m)	1309.0732

clock offset(s) .11441652D-03
freq offset(s/s) -.31177500D-06

Code		calibration(m)	Carrier calibration(m)
C	1	.2378	.0011
0 -	2	.1714	.0008
0 -	3	.0825	.0006
0 -	4	.4756	-.0001
0 -	5	.4800	.0007
0 -	6	.5879	.0005
0 -	7	.3638	.0000

```
Message file for station 1
.....
Station ID: 0309  Session #: 089-1      Mar 30, 1991 21:16
Reference Position - LOW ACCURACY:
Lat.  =  0:00'00.000" N  Long. =   0:00'00.000" W  Height = 0.0  [meters]
Antenna height   =  1.4340  [meters]  (entered in the field in meters)
Long station name:  SOLNW

Receiver serial = = 245
Antenna serial  = = 71  (entered in the office)
NP Software = 4.30      SP Software = 4.20      Download Software = 2.05.00

Survey schedule:  Start time = 21:20  Stop time = 03:53
Data-logging start time = 21:20
Data-logging stop  time = 03:53

Tracking     SV  2   SV  6   SV 11   SV 12   SV 13   SV 15   SV 16   SV 18   SV 19
total L1     1567    1381     654     389     870     471     384     515     826
cont  L1      932     932     637     389     870     471     384     515     637

SV Selection mode = AUTOMATIC
Elevation mask    = 15     [degrees]   Minimum = of SVs  =  3

3D Position      Best PDOP Position [ 2.3]      Mean Position [3217]
Latitude:         36:49'36.34476" N              36:49'36.25079" N
Longitude:       116:28'43.47748" W             116:28'43.36994" W
Height [m]:            1200.6                         1203.0

2D Position      Best PDOP Position [ 1.6]      Mean Position [1555]
Latitude:         36:49'35.61357" N              36:49'36.29984" N
Longitude:       116:28'42.49415" W             116:28'43.60590" W
.....

Origin of station 1 coordinates: Trimvec pseudo range solution

  STATION (mark)  1

input data file  1 : c:\tnl\yucca\03090891.dat
 antenna height(m)     1.421

met values used:  pressure(mb)              1013.0
                  temperature(deg C)          20.0
                  relative humidity(%)        50.0

   x (m)      -2279501.047      lat  (dms)  N    36    49  36.29623
   y (m)      -4576214.254      elon (dms)  E   243    31  16.37228
   z (m)       3802753.883      wlon (dms)  W   116    28  43.62772
                                ht (m)            1223.4421

Message file for station 2
.....
Station ID: 0621  Session #: 089-1      Mar 30, 1991 21:16
Reference Position - LOW ACCURACY:
Lat.  =  0:00'00.000" N  Long. =   0:00'00.000" W  Height = 0.0  [meters]
Antenna height   =  1.4150  [meters]  (entered in the field in meters)
Long station name:  STAGENW

Receiver serial = = 244
Antenna serial  = = 70  (entered in the office)
NP Software = 4.30      SP Software = 4.20      Download Software = 2.05.00

Survey schedule:  Start time = 21:20  Stop time = 03:53
```

```
Data-logging stop time = 03:53

Tracking    SV  2   SV  6   SV 11   SV 12   SV 13   SV 15   SV 16   SV 18   SV 19
total L1     1567    1380     654     387     869     470     382     514     898
cont  L1      932     932     637     387     869     470     382     514     637

SV selection mode = AUTOMATIC
Elevation mask    = 15      [degrees]   Minimum = of SVs  =  3

3D Position      Best PDOP Position [ 2.3]      Mean Position [3247]
Latitude:         36:44'03.73726" N              36:44'03.66418" N
Longitude:       116:28'39.75419" W             116:28'39.64998" W
Height [m]:              900.6                          902.9

2D Position      Best PDOP Position [ 1.6]      Mean Position [1525]
Latitude:         36:44'02.97397" N              36:44'03.93116" N
Longitude:       116:28'38.74191" W             116:28'39.61427" W

.....

  STATION (mark)  2

input data file  1 : c:\tnl\yucca\06210891.dat
 antenna height(m)     1.432

met values used:  pressure(mb)          1013.0
                  temperature(deg C)     20.0
                  relative humidity(%)   50.0

  x (m)      -2282048.322      lat  (dms)  N    36    44   3.70350
  y (m)      -4581535.422      elon (dms)  E   243    31  20.09852
  z (m)       3794360.742      wlon (dms)  W   116    28  39.90148
                               ht (m)          922.5228

slope distance (m)       10259.0570      sigma (m)      .022

                                    Forward          Backward
normal section azimuth (dms)   179 29   .04       359 29  2.28
vertical angle (dms)            -1 43 37.34         0  1 42.71

 east(m)   north(m)   up(m)            92.466      -10253.980        -309.187

Delta lat(dms)     0    -5   32.59273
Delta lon(dms)     0     0    3.72624
Delta ht(m)  -300.9193

Vector covariance matrix (m**2) :
                          dx                      dy                      dz

       dx     .365533999058D-03
       dy     .339613614105D-03    .654692671139D-03
       dz    -.219916250596D-03   -.387143702872D-03    .641815401004D-03

 correlations:

          dx     dy     dz    trop bias 1 bias 2 bias 3 bias 4 bias 5 bias 6
bias 7
    dx  1.000
    dy   .694  1.000
    dz  -.454  -.597  1.000
  trop   .000   .000   .000  1.000
bias 1   .000   .000   .000   .000  1.000
bias 2   .000   .000   .000   .000   .000  1.000
bias 3   .000   .000   .000   .000   .000   .000  1.000
bias 4   .000   .000   .000   .000   .000   .000   .000  1.000
```

bias 6	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.000
bias 7	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
1.000										

	Solution	Sigma	Sensitivity to 10 meter error in station 1 coordinates		
dx (m)	-2547.275	.019	10.000	.000	.001
dy (m)	-5321.168	.020	.000	10.001	.002
dz (m)	-8393.141	.025	-.001	-.003	10.000
trop (%)	.000	.000	.000	.000	.000
bias 1 (cycle)	.000	.000	.000	.000	.000
bias 2 (cycle)	.000	.000	.000	.000	.000
bias 3 (cycle)	.000	.000	.000	.000	.000
bias 4 (cycle)	.000	.000	.000	.000	.000
bias 5 (cycle)	.000	.000	.000	.000	.000
bias 6 (cycle)	.000	.000	.000	.000	.000
bias 7 (cycle)	.000	.000	.000	.000	.000

Results of integer bias search: .37723 3.93204 4.08862

0	0	0
0	0	0
0	0	-1
0	1	-1
0	0	-1
0	0	0

Ratio sum-of-squares(2) to sum-of-squares(1) 10.42

Interval between epochs (sec) 150.0
Epoch increment 5
Number of measurements used in solution 274
Number of measurements rejected 4
RMS (cycles) .057
RDOP(norm to 60 sec)(m/cycle) .026

Elevation mask (deg) 15.0
Edit multiplier 3.5
Modified Hopfield troposphere model used

Best tracking C/A code positions
Station 1

Pdop	2.4	lat (dms)	N	36	49	36.34155
x (m)	-2279488.971	elon (dms)	E	243	31	16.52066
y (m)	-4576198.260	wlon (dms)	W	116	28	43.47934
z (m)	3802740.676	ht (m)		1199.8767		

clock offset(s) .41353837D-04
freq offset(s/s) -.37912359D-06

	Code calibration(m)	Carrier calibration(m)
0 - 1	-.2471	-.0005
0 - 2	-.3911	-.0005
0 - 3	-.5190	-.0008
0 - 4	.2856	-.0003
0 - 5	-.0503	-.0010
0 - 6	-.1553	-.0009
0 - 7	-.2559	-.0011

Station 2

Pdop	2.4	lat (dms)	N	36	44	3.73020
x (m)	-2282036.979	elon (dms)	E	243	31	20.24424
y (m)	-4581520.761	wlon (dms)	W	116	28	39.75576
z (m)	3794348.201	ht (m)		900.4512		

clock offset(s) .50914852D-04

	Code calibration(m)	Carrier calibration(m)
0 - 1	.0571	.0007
0 - 2	.0298	.0004
0 - 3	.0503	.0000
0 - 4	.3521	-.0007
0 - 5	.5190	.0006
0 - 6	.4092	.0004
0 - 7	.4253	-.0005

TRIMBLE NAVIGATION, LTD
585 NORTH MARY AVENUE
SUNNYVALE, CALIFORNIA 94086
U.S.A.

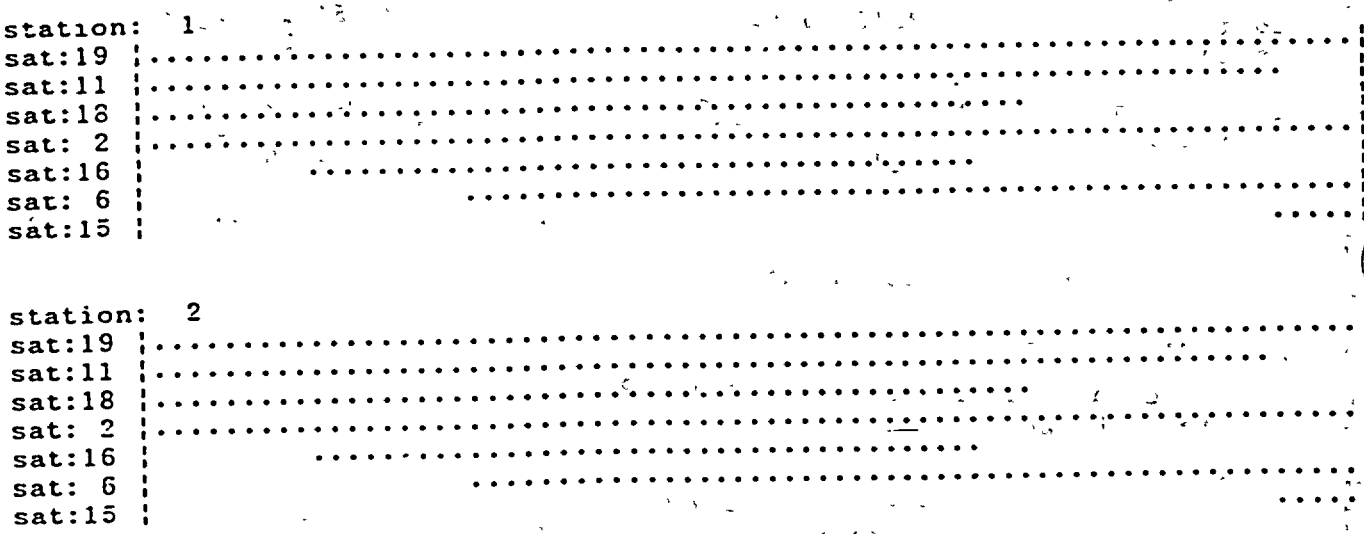
PROGRAM TRIMVEC
GPS RELATIVE POSITIONING SOLUTION
VERSION 90.060

File name: c:\tnl\yucout2\99090891.fix
Coordinate system - WGS-84

Type solution: Double difference

Start date/time: 1991/ 3/30 21:21: 0. day of year 89 tow 595260.
Stop date/time: 1991/ 3/31 0:15:30. day of year 90 tow 930.

Data available



Ephemeris file used: c:\tnl\yucca\99990891.eph

SATELLITE	IODE	HEALTH	WEEK NO.	TOW(sec)	URA(m)
19	12	0	585	595050.00	2.0
11	65	0	585	594990.00	2.0
18	144	0	585	594990.00	2.0
2	64	0	585	594990.00	2.8
16	213	0	585	596640.00	2.0
6	18	0	585	598050.00	5.7
15	12	0	586	300.00	2.8

Broadcast satellite clock correction values

prn	af0	af1	af2	toc
19	.1225806773D-04	.1250555215D-11	.0000000000D+00	.5935D+06
11	-.2691354603D-03	-.4320099833D-11	.0000000000D+00	.6012D+06
18	.6580259651D-05	.5684341886D-12	.0000000000D+00	.5935D+06
2	-.3008591011D-04	-.1818989404D-11	.0000000000D+00	.5976D+06
16	.1724204049D-04	.1932676241D-11	.0000000000D+00	.5976D+06
6	-.2339370549D-03	-.1432454155D-10	.0000000000D+00	.0000D+00
15	.5429005250D-04	.3637978807D-11	.0000000000D+00	.7200D+04

```
Station ID: 9999  Session #: 039-1      Mar 30, 1991 21:16
Reference Position - LOW ACCURACY:
Lat.  =  0:00'00.000" N  Long. =   0:00'00.000" W  Height = 0.0  [meters]
Antenna height   =  1.4860  [meters]  (entered in the field in meters)
Long station name:  CRATER

Receiver serial = = 248
Antenna serial  = = 73  (entered in the office)
NP Software = 4.30     SP Software = 4.20     Download Software = 2.05.00

Survey schedule:  Start time = 21:20  Stop time = 03:53
Data-logging start time = 21:20
Data-logging stop  time = 03:53

Tracking   SV  2  SV  6  SV 11  SV 12  SV 13  SV 15  SV 16  SV 18  SV 19
total L1    1564   1384    655    389    871    468    388    515    905
cont  L1     931    932    637    389    871    468    388    515    637

SV Selection mode = AUTOMATIC
Elevation mask    = 15     [degrees]   Minimum # of SVs  =  3

3D Position      Best PDOP Position [ 2.3]     Mean Position [3271]
Latitude:         36:48'49.71733" N             36:48'49.70137" N
Longitude:       116:33'54.54612" W            116:33'54.23487" W
Height [m]:             1102.2                        1110.1

2D Position      Best PDOP Position [ 1.6]     Mean Position [1481]
Latitude:         36:48'49.02651" N             36:48'49.97678" N
Longitude:       116:33'53.32779" W            116:33'54.19719" W
```

```
Origin of station 1 coordinates : User input

  STATION (mark)  1

input data file  1 : c:\tnl\yucca\99990891.dat
 antenna height(m)     1.474

met values used:  pressure(mb)          1013.0
                  temperature(deg C)      20.0
                  relative humidity(%)    50.0

   x (m)      -2286730.846      lat  (dms)  N    36    48  49.75857
   y (m)      -4573455.423      elon (dms)  E   243    26   5.70269
   z (m)       3801530.390      wlon (dms)  W   116    33  54.29731
                                ht (m)          1098.5060

Message file for station 2
```

```
Station ID: 0309  Session #: 089-1      Mar 30, 1991 21:16
Reference Position - LOW ACCURACY:
Lat.  =  0:00'00.000" N  Long. =   0:00'00.000" W  Height = 0.0  [meters]
Antenna height   =  1.4340  [meters]  (entered in the field in meters)
Long station name:  SOLNW

Receiver serial = = 245
Antenna serial  = = 71  (entered in the office)
NP Software = 4.30     SP Software = 4.20     Download Software = 2.05.00

Survey schedule:  Start time = 21:20  Stop time = 03:53
Data-logging start time = 21:20
Data-logging stop  time = 03:53
```

```
total L1     1567    1381     654     389     870     471     384     515     886
cont  L1      932     932     637     389     870     471     384     515     637

SV Selection mode = AUTOMATIC
Elevation mask    = 15     [degrees]   Minimum = of SVs  =  3

3D Position      Best PDOP Position [ 2.3]      Mean Position [3217]
Latitude:         36:49'36.34476" N              36:49'36.25079" N
Longitude:       116:28'43.47748" W             116:28'43.36994" W
Height [m]:             1200.6                         1203.0

2D Position      Best PDOP Position [ 1.6]      Mean Position [1555]
Latitude:         36:49'35.61357" N              36:49'36.29984" N
Longitude:       116:28'42.49415" W             116:28'43.60590" W

.....

  STATION (mark)  2

 input data file  1 : c:\tnl\yucca\03090891.dat
  antenna height(m)     1.421

 met values used:  pressure(mb)          1013.0
                   temperature(deg C)      20.0
                   relative humidity(%)    50.0

   x (m)      -2279485.447      lat  (dms)  N    36    49   36.32007
   y (m)      -4576193.842      elon (dms)  E   243    31   16.56845
   z (m)       3802735.911      wlon (dms)  W   116    28   43.43155
                                ht (m)          1192.4768

 slope distance (m)        7838.8785     sigma (m)     .017

                                 Forward          Backward
 normal section azimuth (dms)   79 25 15.42      259 28 21.72
 vertical angle (dms)            0 39  6.13        0  0-45.37

  east(m)   north(m)   up(m)        7705.139        1439.062        89.160

 Delta lat(dms)     0     0  46.56150
 Delta lon(dms)     0     5  10.86579
 Delta ht(m)    93.9708

 Vector covariance matrix (m**2) :
                          dx                      dy                      dz

        dx     .358035018129D-03
        dy     .337697948919D-03    .635424564137D-03
        dz    -.225104704099D-03   -.387028026950D-03    .622862522766D-03

  correlations:

             dx      dy      dz    trop  bias 1  bias 2  bias 3  bias 4  bias 5  bias 6
 bias 7
     dx   1.000
     dy    .708   1.000
     dz   -.473   -.615   1.000
   trop    .000    .000    .000   1.000
 bias 1    .000    .000    .000    .000   1.000
 bias 2    .000    .000    .000    .000    .000   1.000
 bias 3    .000    .000    .000    .000    .000    .000   1.000
 bias 4    .000    .000    .000    .000    .000    .000    .000   1.000
 bias 5    .000    .000    .000    .000    .000    .000    .000    .000   1.000
 bias 6    .000    .000    .000    .000    .000    .000    .000    .000    .000
```

	Solution	Sigma	Sensitivity to 10 meter error in station 1 coordinates		
dx (m)	7245.399	.019	9.999	.002	-.001
dy (m)	-2738.418	.025	-.002	10.001	.000
dz (m)	1205.520	.025	.002	-.001	10.000
rcp (%)	.000	.000	.000	.000	.000
bias 1 (cycle)	.000	.000	.000	.000	.000
bias 2 (cycle)	.000	.000	.000	.000	.000
bias 3 (cycle)	.000	.000	.000	.000	.000
bias 4 (cycle)	.000	.000	.000	.000	.000
bias 5 (cycle)	.000	.000	.000	.000	.000
bias 6 (cycle)	.000	.000	.000	.000	.000
bias 7 (cycle)	.000	.000	.000	.000	.000

Results of integer bias search:

.28776	3.74230	4.53906
0	0	0
0	0	0
0	-1	1
0	-1	1
0	-1	1
0	0	0

Ratio sum-of-squares(2) to sum-of-squares(1) 13.00

Interval between epochs (sec) 150.0
Epoch increment 5
Number of measurements used in solution 266
Number of measurements rejected 12
RMS (cycles) .049
OP(norm to 60 sec)(m/cycle) .027

Elevation mask (deg) 15.0
Edit multiplier 3.5
Modified Hopfield troposphere model used

Best tracking C/A code positions

Station 1

Pdop 2.4

x (m)	-2286734.910	lat (dms)	N	36	48	49.76033
y (m)	-4573461.484	elon (dms)	E	243	26	5.66538
z (m)	3801535.876	wlon (dms)	W	116	33	54.33462
		ht (m)		1107.5874		

clock offset(s) .53742228D-03
freq offset(s/s) -.14979153D-06

	Code calibration(m)	Carrier calibration(m)
0 - 1	-.2036	-.0003
0 - 2	-.0366	-.0005
0 - 3	.4780	-.0006
0 - 4	.5122	-.0006
0 - 5	.3452	-.0006
0 - 6	.3408	-.0007
0 - 7	-.0093	-.0010

Station 2

P 2.4

x (m)	-2279488.971	lat (dms)	N	36	49	36.34155
y (m)	-4576198.260	elon (dms)	E	243	31	16.52066
z (m)	3802740.876	wlon (dms)	W	116	28	43.47934
		ht (m)		1199.8767		

clock offset(s) .41353837D-04
freq offset(s/s) -.37912359D-06

0 - 1	-.2171	-.0005
0 - 2	-.3911	-.0005
0 - 3	-.5190	-.0008
0 - 4	.2856	-.0003
0 - 5	-.0503	-.0010
0 - 6	-.1553	-.0009
0 - 7	-.2559	-.0011

TRIMBLE NAVIGATION, LTD
585 NORTH MARY AVENUE
SUNNYVALE, CALIFORNIA 94086
U.S.A.

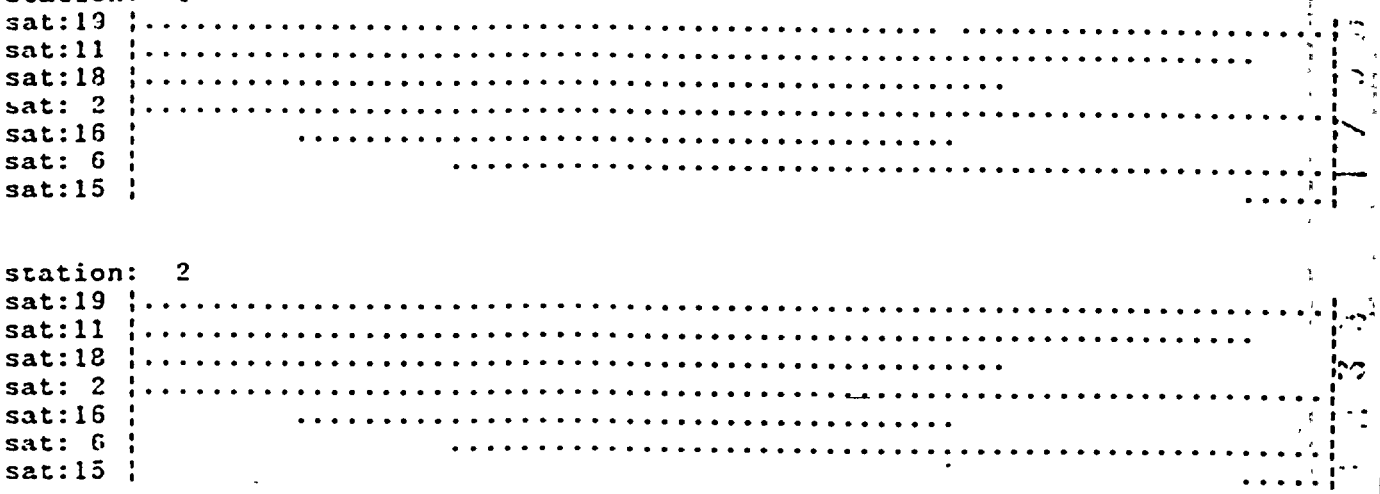
PROGRAM TRIMVEC
GPS RELATIVE POSITIONING SOLUTION
VERSION 90.060

File name: c:\tnl\yucca2\99010891.fix
Coordinate system - WGS-84

Type solution: Double difference

Start date/time: 1991/ 3/30 21:21: 0. day of year 89 tow 595260.
Stop date/time: 1991/ 3/31 0:15:30. day of year 90 tow 930.

Data available



Ephemeris file used: c:\tnl\yucca\99990891.eph

SATELLITE	IODE	HEALTH	WEEK NO.	TOW(sec)	URA(m)
19	12	0	585	595050.00	2.0
11	65	0	585	594990.00	2.0
18	144	0	585	594990.00	2.0
2	64	0	585	594990.00	2.8
16	213	0	585	596640.00	2.0
6	18	0	585	598050.00	5.7
15	12	0	586	300.00	2.8

Broadcast satellite clock correction values

prn	af0	af1	af2	toc
19	.1225806773D-04	.1250555215D-11	.0000000000D+00	.5935D+06
11	-.2691351603D-03	-.4320099833D-11	.0000000000D+00	.6012D+06
18	.6580259651D-05	.5684341886D-12	.0000000000D+00	.5935D+06
2	-.3008591011D-04	-.1818989404D-11	.0000000000D+00	.5976D+06
16	.1724204049D-04	.1932676241D-11	.0000000000D+00	.5976D+06
6	-.2339370549D-03	-.1432454155D-10	.0000000000D+00	.0000D+00
15	.5429005250D-04	.3637978807D-11	.0000000000D+00	.7200D+04

```
Station ID: 9999  Session =: 089-1      Mar 30, 1991 21:16
Reference Position - LOW ACCURACY:
Lat.  =  0:00'00.000" N  Long. =  0:00'00.000" W  Height = 0.0  [meters]
Antenna height  =  1.4860  [meters]  (entered in the field in meters)
Long station name:  CRATER

Receiver serial # = 248
Antenna serial  # = 73  (entered in the office)
NP Software = 4.30     SP Software = 4.20     Download Software = 2.05.00

Survey schedule:  Start time = 21:20  Stop time = 03:53
Data-logging start time = 21:20
Data-logging stop  time = 03:53

Tracking   SV  2   SV  6   SV 11   SV 12   SV 13   SV 15   SV 16   SV 18   SV 19
total L1    1564    1384     655     389     871     468     388     515     905
cont  L1     931     932     637     389     871     468     388     515     637

SV Selection mode = AUTOMATIC
Elevation mask    = 15     [degrees]   Minimum # of SVs  =  3

3D Position      Best PDOP Position [ 2.3]     Mean Position [3271]
Latitude:         36:48'49.71733" N              36:48'49.70137" N
Longitude:       116:33'54.54612" W             116:33'54.23487" W
Height [m]:              1102.2                         1110.1

2D Position      Best PDOP Position [ 1.6]     Mean Position [1481]
Latitude:         36:48'49.02651" N              36:48'49.97678" N
Longitude:       116:33'53.32779" W             116:33'54.19719" W

Origin of station 1 coordinates : User input

 STATION (mark)  1

input data file  1 : c:\tnl\yucca\9999089!.dat
 antenna height(m)     1.474

met values used:  pressure(mb)              1013.0
                  temperature(deg C)          20.0
                  relative humidity(%)        50.0

  x (m)     -2286730.846      lat  (dms)  N    36    48  49.75857
  y (m)     -4573455.423      elon (dms)  E   243    26   5.70269
  z (m)      3801530.390      wlon (dms)  W   116    33  54.29731
                              ht (m)          1098.5060

Message file for station 2
Station ID: 0101  Session =: 089-1      Mar 30, 1991 21:17
Reference Position - LOW ACCURACY:
Lat.  =  0:00'00.000" N  Long. =  0:00'00.000" W  Height = 0.0  [meters]
Antenna height  =  1.4535  [meters]  (entered in the field in meters)
Long station name:  TR1SW

Receiver serial # = 247
Antenna serial  # = 72  (entered in the office)
NP Software = 4.30     SP Software = 4.20     Download Software = 2.05.00

Survey schedule:  Start time = 21:20  Stop time = 03:53
Data-logging start time = 21:20
Data-logging stop  time = 03:53
```

```
total L1    1567   1380    656    392    870    469    386    513    873
cont  L1     932    932    637    392    870    469    386    513    637

SV Selection mode = AUTOMATIC
Elevation mask    = 15    [degrees]   Minimum # of SVs  =  3

3D Position       Best PDOP Position [ 2.3]     Mean Position [3178]
Latitude:          36:48'10.28554" N             36:48'10.20856" N
Longitude:        116:29'57.40073" W            116:29'57.30117" W
Height [m]:              1067.0                        1068.5

2D Position       Best PDOP Position [ 1.6]     Mean Position [1549]
Latitude:          36:48'09.55955" N             36:48'10.65731" N
Longitude:        116:29'56.45231" W            116:29'57.00652" W

 ..........................................................................

   STATION (mark)  2

 input data file  1 : c:\tnl\yucca\01010891.dat
  antenna height(m)     1.441

 met values used:  pressure(mb)          1013.0
                   temperature(deg C)     20.0
                   relative humidity(%)   50.0

    x (m)      -2281786.476      lat  (dms)  N    36    48  10.27813
    y (m)      -4576703.216      elon (dms)  E   243    30   2.65566
    z (m)       3800531.723      wlon (dms)  W   116    29  57.34434
                                 ht (m)          1058.2899

 slope distance (m)         5999.3565      sigma (m)      .013

                                      Forward          Backward
 normal section azimuth (dms)    101 41 12.51      281 43 34.48
 vertical angle (dms)              0-24 39.58        0  0 22.44

  east(m)    north(m)    up(m)          5874.836       -1215.209          -43.034

 Delta lat(dms)      0     0 -39.48044
 Delta lon(dms)      0     3  56.95297
 Delta ht(m)    -40.2161

 Vector covariance matrix (m**2) :
                                dx                    dy                    dz

        dx    .206011820588D-03
        dy    .192312044625D-03   .365434767733D-03
        dz   -.126648049778D-03  -.215190847333D-03   .352249167296D-03

  correlations:

             dx      dy      dz    trop bias 1 bias 2 bias 3 bias 4 bias 5 bias 6
 bias 7
     dx   1.000
     dy    .701   1.000
     dz   -.470   -.600   1.000
    trop  .000    .000    .000   1.000
 bias 1   .000    .000    .000    .000   1.000
 bias 2   .000    .000    .000    .000    .000   1.000
 bias 3   .000    .000    .000    .000    .000    .000   1.000
 bias 4   .000    .000    .000    .000    .000    .000    .000   1.000
 bias 5   .000    .000    .000    .000    .000    .000    .000    .000   1.000
 bias 6   .000    .000    .000    .000    .000    .000    .000    .000    .000   1.000
 bias 7   .000    .000    .000    .000    .000    .000    .000    .000    .000    .000
```

	Solution	Sigma	Sensitivity to 10 meter error in station 1 coordinates		
dx (m)	4911.369	.014	10.000	.001	-.
dy (m)	-3247.792	.019	-.002	10.001	.
dz (m)	-998.667	.019	.001	-.001	10.000
Prop (%)	.000	.000	.000	.000	.000
bias 1 (cycle)	.000	.000	.000	.000	.000
bias 2 (cycle)	.000	.000	.000	.000	.000
bias 3 (cycle)	.000	.000	.000	.000	.000
bias 4 (cycle)	.000	.000	.000	.000	.000
bias 5 (cycle)	.000	.000	.000	.000	.000
bias 6 (cycle)	.000	.000	.000	.000	.000
bias 7 (cycle)	.000	.000	.000	.000	.000

Results of integer bias search:

.14091	3.41039	4.31684
0	0	0
0	0	0
0	-1	1
0	-1	1
0	-1	1
0	0	0

Ratio sum-of-squares(2) to sum-of-squares(1) 24.21

Interval between epochs (sec) 150.0
Epoch increment 5
Number of measurements used in solution 272
Number of measurements rejected 6
RMS (cycles) .037
PDOP(norm to 60 sec)(m/cycle) .027

Elevation mask (deg) 15.0
Edit multiplier 3.5
Modified Hopfield troposphere model used

Best tracking C/A code positions

Station 1

Pdop	2.4					
x (m)	-2286734.910	lat (dms)	N	36	48	49.76033
y (m)	-4573461.484	elon (dms)	E	243	26	5.66538
z (m)	3801535.876	wlon (dms)	W	116	33	54.33462
		ht (m)		1107.5874		
clock offset(s)	.53742228D-03					
freq offset(s/s)	-.14979153D-08					

Code calibration(m)	Carrier calibration(m)
0 - 1 -.2036	-.0003
0 - 2 -.0366	-.0005
0 - 3 -.4780	-.0006
0 - 4 .5122	-.0006
0 - 5 .3452	-.0006
0 - 6 .3408	-.0007
0 - 7 -.0093	-.0010

Station 2

Pdop	2.4					
x (m)	-2281790.620	lat (dms)	N	36	48	10.27714
y (m)	-4576708.407	elon (dms)	E	243	30	2.59952
z (m)	3800536.544	wlon (dms)	W	116	29	57.40048
		ht (m)		1066.3787		
clock offset(s)	.26688192D-03					
freq offset(s/s)	-.35618558D-07					

0 - 2	-1.5981	.0008
0 - 3	-1.7563	-.0001
0 - 4	2.1401	-.0003
0 - 5	.9419	.0013
0 - 6	1.9004	.0001
0 - 7	1.8247	-.0005

TRIMBLE NAVIGATION, LTD
585 NORTH MARY AVENUE
SUNNYVALE, CALIFORNIA 94086
U.S.A.

PROGRAM TRIMVEC
GPS RELATIVE POSITIONING SOLUTION
VERSION 90.060

File name: c:\tnl\yucout2\01210891.fix
Coordinate system - WGS-84

Type solution: Double difference

Start date/time: 1991/ 3/30 21:21: 0. day of year 89 tow 595260.
Stop date/time: 1991/ 3/31 0:15:30. day of year 90 tow 930.

Data available

station: 1
sat:19 |.....|
sat:18 |.....|
sat:11 |.....|
sat: 2 |.....|
sat:16 |.....|
sat: 6 |.....|
sat:15 |

station: 2
sat:19 |.....|
sat:18 |.....|
sat:11 |.....|
sat: 2 |.....|
sat:16 |.....|
sat: 6 |.....|
sat:15 |

Ephemeris file used: c:\tnl\yucca\01010891.eph

SATELLITE	IODE	HEALTH	WEEK NO.	TOW(sec)	URA(m)
19	12	0	585	594990.00	2.0
18	144	0	585	595200.00	2.0
11	65	0	585	595080.00	2.0
2	64	0	585	595050.00	2.8
16	213	0	585	596670.00	2.0
6	18	0	585	598080.00	5.7
15	12	0	586	330.00	2.8

Broadcast satellite clock correction values

prn	af0	af1	af2	toc
19	.1225806773D-04	.1250555215D-11	.0000000000D+00	.5935D+06
18	.6580259651D-05	.5684341886D-12	.0000000000D+00	.5935D+06
11	-.2691354603D-03	-.4320099833D-11	.0000000000D+00	.6012D+06
2	-.3008591011D-04	-.1818989404D-11	.0000000000D+00	.5976D+06
16	.1724204049D-04	.1932676241D-11	.0000000000D+00	.5976D+06
6	-.2339370549D-03	-.1432154155D-10	.0000000000D+00	.0000D+00

Message file for station 1

Station ID: 0101 Session #: 089-1 Mar 30, 1991 21:17
Reference Position - LOW ACCURACY:
Lat. = 0:00'00.000" N Long. = 0:00'00.000" W Height = 0.0 [meters]
Antenna height = 1.4535 [meters] (entered in the field in meters)
Long station name: TR1SW

Receiver serial # = 247
Antenna serial # = 72 (entered in the office)
NP Software = 4.30 SP Software = 4.20 Download Software = 2.05.00

Survey schedule: Start time = 21:20 Stop time = 03:53
Data-logging start time = 21:20
Data-logging stop time = 03:53

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
total L1	1567	1380	656	392	870	469	386	513	873
cont L1	932	932	637	392	870	469	386	513	637

SV Selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

	Best PDOP Position [2.3]	Mean Position [3178]
3D Position		
Latitude:	36:48'10.28554" N	36:48'10.20856" N
Longitude:	116:29'57.40073" W	116:29'57.30117" W
Height [m]:	1067.0	1068.5
2D Position	Best PDOP Position [1.6]	Mean Position [1549]
Latitude:	36:48'09.55955" N	36:48'10.65731" N
Longitude:	116:29'56.45231" W	116:29'57.00652" W

Origin of station 1 coordinates : Trimvec pseudo range solution

STATION (mark) 1

input data file 1 : c:\tnl\yucca\01010891.dat
antenna height(m) 1.441

met values used: pressure(mb) 1013.0
temperature(deg C) 20.0
relative humidity(%) 50.0

x (m)	-2281802.037	lat (dms) N	36	48	10.27485
y (m)	-4576722.392	elon (dms) E	243	30	2.43907
z (m)	3800549.631	wlon (dms) W	116	29	57.56093
		ht (m)	1088.3186		

Message file for station 2

Station ID: 0621 Session #: 089-1 Mar 30, 1991 21:16
Reference Position - LOW ACCURACY:
Lat. = 0:00'00.000" N Long. = 0:00'00.000" W Height = 0.0 [meters]
Antenna height = 1.4450 [meters] (entered in the field in meters)
Long station name: STAGENW

Receiver serial # = 244
Antenna serial # = 70 (entered in the office)
NP Software = 4.30 SP Software = 4.20 Download Software = 2.05.00

Survey schedule: Start time = 21:20 Stop time = 03:53

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
total L1	1567	1380	654	387	869	470	382	514	898
cont L1	932	932	637	387	869	470	382	514	637

SV Selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

	Best PDOP Position [2.3]	Mean Position [3247]
3D Position		
Latitude:	36:44'03.73726" N	36:44'03.66418" N
Longitude:	116:28'39.75419" W	116:28'39.64998" W
Height [m]:	900.6	902.9
2D Position	Best PDOP Position [1.6]	Mean Position [1525]
Latitude:	36:44'02.97397" N	36:44'03.93116" N
Longitude:	116:28'38.74191" W	116:28'39.61427" W

STATION (mark) 2

input data file 1 : c:\tnl\yucca\06210891.dat
antenna height(m) 1.432

met values used: pressure(mb) 1013.0
temperature(deg C) 20.0
relative humidity(%) 50.0

x (m)	-2282048.282	lat (dms)	N	36 44 3.72355
y (m)	-1581534.183	elon (dms)	E	243 31 20.07767
z (m)	3794360.672	wlon (dms)	W	116 28 39.92233
		ht (m)		921.5775

slope distance (m) 7843.2888 sigma (m) .017

	Forward	Backward
normal section azimuth (dms)	165 46 37.80	345 47 24.28
vertical angle (dms)	-1 15 12.47	0 1 14.32

east(m)	north(m)	up(m)
1926.586	-7601:053	-171.574

Delta lat(dms) 0 -4 6.55130
Delta lon(dms) 0 1 17.63860
Delta ht(m) -166.7412

Vector covariance matrix (m**2) :

	dx	dy	dz
dx	.230441044908D-03		
dy	.216448531329D-03	.401662522837D-03	
dz	-.145816512269D-03	-.241933545598D-03	.391235981248D-03

correlations:

	dx	dy	dz	trop	bias 1	bias 2	bias 3	bias 4	bias 5	bias 6	bias 7
dx	1.000										
dy	.711	1.000									
dz	-.486	-.610	1.000								
trop	.000	.000	.000	1.000							
bias 1	.000	.000	.000	.000	1.000						
bias 2	.000	.000	.000	.000	.000	1.000					
bias 3	.000	.000	.000	.000	.000	.000	1.000				
bias 4	.000	.000	.000	.000	.000	.000	.000	1.000			

```
bias 6    .000    .000    .000    .000    .000    .000    .000    .000    .000    1.000
bias 7    .000    .000    .000    .000    .000    .000    .000    .000    .000    .000
 1.000

                          Solution        Sigma       Sensitivity to 10 meter error
                                                        in station 1 coordinates
     dx (m)                -246.245         .015        10.000          .001          .000
     dy (m)               -4811.791         .020         -.001        10.001          .001
     dz (m)               -6188.959         .020          .000         -.003        10.000
   trop (%)                    .000         .000          .000          .000          .000
bias 1 (cycle)                 .000         .000          .000          .000          .000
bias 2 (cycle)                 .000         .000          .000          .000          .000
bias 3 (cycle)                 .000         .000          .000          .000          .000
bias 4 (cycle)                 .000         .000          .000          .000          .000
bias 5 (cycle)                 .000         .000          .000          .000          .000
bias 6 (cycle)                 .000         .000          .000          .000          .000
bias 7 (cycle)                 .000         .000          .000          .000          .000

 Results of integer bias search:
              .18052              4.00887              4.59620

                  0                    0                    0
                  0                    0                    0
                  0                   -1                    1
                  0                   -1                    1
                  0                   -1                    1
                  0                    0                    0
Ratio sum-of-squares(2) to sum-of-squares(1)       22.21

 Interval between epochs (sec)  150.0
 Epoch increment     5
 Number of measurements used in solution   271
  mber of measurements rejected              7
 RMS (cycles)          .039
 RDOP(norm to 60 sec)(m/cycle)        .027

 Elevation mask (deg)      15.0
 Edit multiplier    3.5
 Modified Hopfield troposphere model used

 Best tracking C/A code positions
 Station  1
 Pdop          2.4
   x (m)      -2281790.620        lat  (dms)  N    36    48   10.27714
   y (m)      -4576708.407        elon (dms)  E   243    30    2.59952
   z (m)       3800536.544        wlon (dms)  W   116    29   57.40048
                                  ht (m)          1066.3787
 clock offset(s)            .26688192D-03
 freq  offset(s/s)         -.35618558D-07

  Code calibration(m)      Carrier calibration(m)
 0 -  1         -1.4658                  .0021
 0 -  2         -1.5981                  .0008
 0 -  3         -1.7563                 -.0001
 0 -  4          2.1401                 -.0003
 0 -  5           .9419                  .0013
 0 -  6          1.9004                  .0001
 0 -  7          1.8247                 -.0005
 Station  2
 Pdop          2.4
   x (m)      -2282036.979        lat  (dms)  N    36    44    3.73020
   y (m)      -4581520.761        elon (dms)  E   243    31   20.24424
   z (m)       3794348.201        wlon (dms)  W   116    28   39.75576
                                  ht (m)           900.4512
 clock offset(s)            .50914852D-04
 freq  offset(s/s)          .12901810D-06
```

	Code calibration(m)	Carrier calibration(m)
0 - 1	.0571	.0007
0 - 2	.0298	.0004
0 - 3	.0503	.0000
0 - 4	.3521	-.0007
0 - 5	.5190	.0006
0 - 6	.4092	.0004
0 - 7	.4253	-.0005

TRIMBLE NAVIGATION, LTD
585 NORTH MARY AVENUE
SUNNYVALE, CALIFORNIA 94086
U.S.A.

PROGRAM TRINVEC
GPS RELATIVE POSITIONING SOLUTION
VERSION 90.060

File name: c:\tnl\yucout2\99210891.fix
Coordinate system - WGS-84

Type solution: Double difference

Start date/time: 1991/ 3/30 21:21: 0. day of year 89 tow 595260.
Stop date/time: 1991/ 3/31 0:15:30. day of year 90 tow 930.

Data available

station: 1
sat:19 |.....|
sat:11 |.....|
sat:18 |.....|
sat: 2 |.....|
sat:16 |.....|
sat: 6 |.....|
sat:15 |

station: 2
sat:19 |.....|
sat:11 |.....|
sat:18 |.....|
sat: 2 |.....|
sat:16 |.....|
sat: 6 |.....|
sat:15 |

Ephemeris file used: c:\tnl\yucca\99990891.eph

SATELLITE	IODE	HEALTH	WEEK NO.	TOW(sec)	URA(m)
19	12	0	585	595050.00	2.0
11	65	0	585	594990.00	2.0
18	144	0	585	594990.00	2.0
2	64	0	585	594990.00	2.8
16	213	0	585	596640.00	2.0
6	18	0	585	598050.00	5.7
15	12	0	586	300.00	2.8

Broadcast satellite clock correction values

prn	af0	af1	af2	toc
19	.1225806773D-04	.1250555215D-11	.0000000000D+00	.5935D+06
11	-.2691354603D-03	-.4320099833D-11	.0000000000D+00	.6012D+06
18	.6580259651D-05	.5684341886D-12	.0000000000D+00	.5935D+06
2	-.3008391011D-04	-.1818989404D-11	.0000000000D+00	.5976D+06
16	.1724204049D-04	.1932676241D-11	.0000000000D+00	.5976D+06
6	-.2339370549D-03	-.1432454155D-10	.0000000000D+00	.0000D+00
15	.5429005250D-04	.3637978807D-11	.0000000000D+00	.7200D+04

```
Message file for station 1
.....
Station ID: 9999  Session #: 089-1      Mar 30, 1991 21:16
Reference Position - LOW ACCURACY:
Lat.  =  0:00'00.000" N  Long. =   0:00'00.000" W  Height = 0.0  [meters]
Antenna height   =  1.4860  [meters]  (entered in the field in meters)
Lo - station name:  CRATER

Receiver serial = = 248
Antenna serial  = = 73  (entered in the office)
NP Software = 4.30      SP Software = 4.20      Download Software = 2.05.00

Survey schedule:  Start time = 21:20  Stop time = 03:53
Data-logging start time = 21:20
Data-logging stop  time = 03:53

Tracking    SV  2   SV  6   SV 11   SV 12   SV 13   SV 15   SV 16   SV 18   SV 19
total L1     1564    1384     655     389     871     468     388     515     905
cont  L1      931     932     637     389     871     468     388     515     637

SV Selection mode = AUTOMATIC
Elevation mask    = 15      [degrees]   Minimum # of SVs  =  3

3D Position      Best PDOP Position [ 2.3]      Mean Position [3271]
Latitude:         36:48'49.71733" N              36:48'49.70137" N
Longitude:       116:33'54.54612" W             116:33'54.23487" W
Height [m]:              1102.2                         1110.1

2D Position      Best PDOP Position [ 1.6]      Mean Position [1481]
Latitude:         36:48'49.02651" N              36:48'49.97678" N
Longitude:       116:33'53.32779" W             116:33'54.19719" W

.....

Origin of station 1 coordinates : User input

  STATION (mark)  1

input data file  1 : c:\tnl\yucca\99990891.dat
 antenna height(m)      1.474

met values used:  pressure(mb)              1013.0
                  temperature(deg C)          20.0
                  relative humidity(%)        50.0

  X (m)      -2286730.846      lat  (dms)  N    36    48  49.75857
  Y (m)      -4573455.423      elon (dms)  E   243    26   5.70269
  Z (m)       3801530.390      wlon (dms)  W   116    33  54.29731
                               ht (m)          1098.5060

Message file for station 2
.....
Station ID: 0021  Session #: 089-1      Mar 30, 1991 21:16
Reference Position - LOW ACCURACY:
Lat.  =  0:00'00.000" N  Long. =   0:00'00.000" W  Height = 0.0  [meters]
Antenna height   =  1.4450  [meters]  (entered in the field in meters)
Lo - station name:  STAGENW

Receiver serial = = 244
Antenna serial  = = 70  (entered in the office)
NP Software = 4.30      SP Software = 4.20      Download Software = 2.05.00

Survey schedule:  Start time = 21:20  Stop time = 03:53
Data-logging start time = 21:20
```

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 18	SV 18	SV 19
total L1	1567	1380	654	387	869	470	382	514	898
cont L1	932	932	637	387	869	470	382	514	637

SV Selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

3D Position	Best PDOP Position [2.3]	Mean Position [3247]
Latitude:	36:44'03.73726" N	36:44'03.66418" N
Longitude:	116:28'39.75419" W	116:28'39.64998" W
Height [m]:	900.6	902.9
2D Position	Best PDOP Position [1.6]	Mean Position [1525]
Latitude:	36:44'02.97397" N	36:44'03.93116" N
Longitude:	116:28'38.74191" W	116:28'39.61427" W

STATION (mark) 2

input data file 1 : c:\tnl\yucca\06210891.dat
antenna height(m) 1.432

met values used: pressure(mb) 1013.0
temperature(deg C) 20.0
relative humidity(%) 50.0

x (m)	-2282032.720	lat (dms)	N	36	44	3.72544
y (m)	-4581515.009	elon (dms)	E	243	31	20.29451
z (m)	3794342.758	wlon (dms)	W	116	28	39.70549
		ht (m)		891.5479		

slope distance (m) 11776.7293 sigma (m) .025

	Forward	Backward
normal section azimuth (dms)	138 28 18.75	318 31 27.10
vertical angle (dms)	-1 3 35.57	0 0 59.94

east(m)	north(m)	up(m)
7806.490	-8814.909	-217.839

Delta lat(dms) 0 -4 46.03313
Delta lon(dms) 0 5 14.59182
Delta ht(m) -206.9581

Vector covariance matrix (m**2) :

	dx	dy	dz
dx	.565486056411D-03		
dy	.523613742570D-03	.987598678390D-03	
dz	-.338473514433D-03	-.565854136541D-03	.932151437948D-03

correlations:

	dx	dy	dz	trop	bias 1	bias 2	bias 3	bias 4	bias 5	bias 6	bias 7
dx	1.000										
dy	.701	1.000									
dz	-.466	-.590	1.000								
trop	.000	.000	.000	1.000							
bias 1	.000	.000	.000	.000	1.000						
bias 2	.000	.000	.000	.000	.000	1.000					
bias 3	.000	.000	.000	.000	.000	.000	1.000				
bias 4	.000	.000	.000	.000	.000	.000	.000	1.000			
bias 5	.000	.000	.000	.000	.000	.000	.000	.000	1.000		

1.000

	Solution	Sigma	Sensitivity to 10 meter error in station 1 coordinates		
dx (m)	4698.125	.024	10.000	.002	-.000
dy (m)	-8059.585	.031	-.003	10.002	.002
dz (m)	-7187.632	.031	.001	-.004	10.000
drop (%)	.000	.000	.000	.000	.000
bias 1 (cycle)	.000	.000	.000	.000	.000
bias 2 (cycle)	.000	.000	.000	.000	.000
bias 3 (cycle)	.000	.000	.000	.000	.000
bias 4 (cycle)	.000	.000	.000	.000	.000
bias 5 (cycle)	.000	.000	.000	.000	.000
bias 6 (cycle)	.000	.000	.000	.000	.000
bias 7 (cycle)	.000	.000	.000	.000	.000

Results of integer bias search:

.43541	3.43212	4.57015	
0	0	0	
0	0	0	
0	-1	1	
0	-1	1	
0	-1	1	
0	0	0	
0	0		

Ratio sum-of-squares(2) to sum-of-squares(1) 7.88

Interval between epochs (sec) 150.0
Epoch increment 5
Number of measurements used in solution 275
Number of measurements rejected 4
RMS (cycles) .065
PDOP(norm to 60 sec)(m/cycle) .026

Elevation mask (deg) 15.0
Edit multiplier 3.5
Modified Hopfield troposphere model used

Best tracking C/A code positions
Station 1

Pdop	2.4					
x (m)	-2286734.910	lat (dms)	N	36	48	49.76033
y (m)	-4573461.484	elon (dms)	E	243	26	5.66538
z (m)	3801535.876	wlon (dms)	W	116	33	54.33462
		ht (m)		1107.5874		

clock offset(s) .53742228D-03
freq offset(s/s) -.14979153D-06

Code calibration(m)		Carrier calibration(m)
0 - 1	-.2036	-.0003
0 - 2	-.0366	-.0005
0 - 3	-.4780	-.0006
0 - 4	.5122	-.0006
0 - 5	.3452	-.0006
0 - 6	.3408	-.0007
0 - 7	-.0093	-.0010

Station 2

Pdop	2.4					
x (m)	-2282036.979	lat (dms)	N	36	44	3.73020
y (m)	-4581520.761	elon (dms)	E	243	31	20.24424
z (m)	3794348.201	wlon (dms)	W	116	28	39.75576
		ht (m)		900.4512		

clock offset(s) .50914852D-04
freq offset(s/s) -.47891840D-06

0 - 1	.0571	.0007
0 - 2	.0298	.0004
0 - 3	.0503	.0000
0 - 4	.3521	-.0007
0 - 5	.5190	.0006
0 - 6	.4092	.0004
0 - 7	.4253	-.0005

TRIMBLE NAVIGATION, LTD
585 NORTH MARY AVENUE
SUNNYVALE, CALIFORNIA 94086
U.S.A.

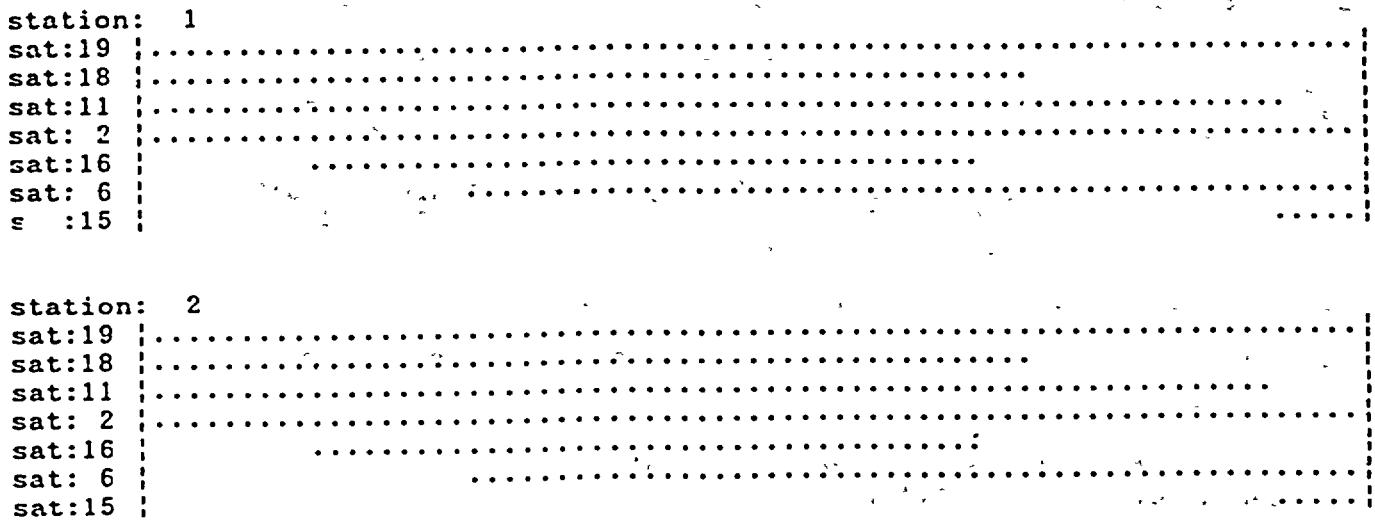
PROGRAM TRIMVEC
GPS RELATIVE POSITIONING SOLUTION
VERSION 90.060

File name: c:\tnl\yucout2\01090891.fix
Coordinate system - WGS-84

Type solution: Double difference

Start date/time: 1991/ 3/30 21:21: 0. day of year 89 tow 595260.
Stop date/time: 1991/ 3/31 0:15:30. day of year 90 tow 930.

Data available



Ephemeris file used: c:\tnl\yucca\01010891.eph

SATELLITE	IODE	HEALTH	WEEK NO.	TOW(sec)	URA(m)
19	12	0	585	594990.00	2.0
18	144	0	585	595200.00	2.0
11	65	0	585	595080.00	2.0
2	64	0	585	595050.00	2.8
16	213	0	585	596670.00	2.0
6	18	0	585	598080.00	5.7
15	12	0	586	330.00	2.8

Broadcast satellite clock correction values

prn	af0	af1	af2	toc
19	.1225806773D-04	.1250555215D-11	.0000000000D+00	.5935D+06
18	.6580259651D-05	.5684341886D-12	.0000000000D+00	.5935D+06
11	-.2691354603D-03	-.4320099833D-11	.0000000000D+00	.6012D+06
2	-.3008591011D-04	-.1218989404D-11	.0000000000D+00	.5976D+06
16	.1724204049D-04	.1932676241D-11	.0000000000D+00	.5976D+06
6	-.2329370549D-03	-.1432454155D-10	.0000000000D+00	.0000D+00
15	.5429865259D-04	.2637978807D-11	.0000000000D+00	.7200D+04

Message file for station 1

```
Station ID: 0101  Session #: 089-1      Mar 30, 1991 21:17
Reference Position - LOW ACCURACY:
Lat.  =  0:00'00.000" N  Long. =   0:00'00.000" W  Height = 0.0  [meters]
Antenna height   =  1.4535  [meters]  (entered in the field in meters)
Lo   station name:  TR1SW

Receiver serial # = 247
Antenna serial  # = 72  (entered in the office)
NP Software = 4.30     SP Software = 4.20     Download Software = 2.05.00

Survey schedule:  Start time = 21:20  Stop time = 03:53
Data-logging start time = 21:20
Data-logging stop  time = 03:53

Tracking   SV  2   SV  6   SV 11   SV 12   SV 13   SV 15   SV 16   SV 18   SV 19
total L1    1567    1380     656     392     870     469     386     513     873
cont  L1     932     932     637     392     870     469     386     513     637

SV Selection mode = AUTOMATIC
Elevation mask    = 15     [degrees]   Minimum = of SVs  =  3

3D Position      Best PDOP Position [ 2.3]     Mean Position [3178]
Latitude:         36:48'10.28554" N             36:48'10.20856" N
Longitude:       116:29'57.40073" W            116:29'57.30117" W
Height [m]:              1067.0                        1068.5

2D Position      Best PDOP Position [ 1.6]     Mean Position [1549]
Latitude:         36:48'09.55955" N             36:48'10.65731" N
Longitude:       116:29'56.45231" W            116:29'57.00652" W
```

Origin of station 1 coordinates : Trimvec pseudo range solution

STATION (mark) 1

```
input data file  1 : c:\tnl\yucca\01010891.dat
 antenna height(m)     1.441

met values used:  pressure(mb)          1013.0
                  temperature(deg C)      20.0
                  relative humidity(%)    50.0

   x (m)      -2281802.037      lat  (dms)  N    36    48  10.27485
   y (m)      -4576722.392      elon (dms)  E   243    30   2.43907
   z (m)       3800549.631      wlon (dms)  W   116    29  57.56093
                                ht (m)          1088.3186
```

Message file for station 2

```
Station ID: 0309  Session =: 089-1      Mar 30, 1991 21:16
Reference Position - LOW ACCURACY:
Lat.  =  0:00'00.000" N  Long. =   0:00'00.000" W  Height = 0.0  [meters]
Antenna height   =  1.4340  [meters]  (entered in the field in meters)
Lo   station name:  SOLNW

Receiver serial = = 245
Antenna serial  = = 71  (entered in the office)
NP Software = 4.30     SP Software = 4.20     Download Software = 2.05.00

Survey schedule:  Start time = 21:20  Stop time = 03:53
Data-logging start time = 21:20
```

```
Tracking    SV  2   SV  6   SV 11   SV 12   SV 13   SV 15   SV 16   SV 18   SV 19
total L1    1567    1381    654     389     870     471     384     515     886
cont  L1    932     932     637     389     870     471     384     515     637

SV Selection mode = AUTOMATIC
Elevation mask    = 15      [degrees]   Minimum # of SVs  = 03

3D Position     Best PDOP Position [ 2.3]     Mean Position [3217]
Latitude:        36:49'36.34476" N             36:49'36.25079" N
Longitude:      116:28'43.47748" W            116:28'43.36994" W
Height [m]:           1200.6                        1203.0

2D Position     Best PDOP Position [ 1.6]     Mean Position [1555]
Latitude:        36:49'35.61357" N             36:49'36.29984" N
Longitude:      116:28'42.49415" W            116:28'43.60590" W

 ..........................................................................

  STATION (mark)  2

 input data file  1 : c:\tnl\yucca\03090891.dat
  antenna height(m)     1.421

 met values used:  pressure(mb)          1013.0
                   temperature(deg C)      20.0
                   relative humidity(%)    50.0

   x (m)      -2279501.008      lat  (dms)  N   36   49  36.31633
   y (m)      -4576213.015      elon (dms)  E  243   31  16.35141
   z (m)       3802753.814      wlon (dms)  W  116   28  43.64859
                                ht (m)          1222.4989

 slope distance (m)        3226.8598     sigma (m)      .007

                                      Forward          Backward
 normal section azimuth (dms)    34 37 34.75      214 38 19.05
 vertical angle (dms)             2 22  7.23        0 -2 30.65

  east(m)   north(m)   up(m)          1832.005        2653.035        133.364

 Delta lat(dms)     0    1  26.04148
 Delta lon(dms)     0    1  13.91234
 Delta ht(m)   134.1803

 Vector covariance matrix (m**2) :
                              dx                    dy                    dz

       dx     .511198908761D-04
       dy     .476025813349D-04    .926062462132D-04
       dz    -.295690981093D-04   -.547230640566D-04    .904464609319D-04

  correlations:

             dx      dy      dz    trop bias 1 bias 2 bias 3 bias 4 bias 5 bias 6
 bias 7
     dx   1.000
     dy    .692   1.000
     dz   -.435   -.598  1.000
   trop    .000    .000    .000   1.000
 bias 1    .000    .000    .000    .000   1.000
 bias 2    .000    .000    .000    .000    .000   1.000
 bias 3    .000    .000    .000    .000    .000    .000   1.000
 bias 4    .000    .000    .000    .000    .000    .000    .000   1.000
 bias 5    .000    .000    .000    .000    .000    .000    .000    .000   1.000
```

bias 7 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000
1.000

	Solution	Sigma	Sensitivity to 10 meter error in station 1 coordinates		
dx (m)	2301.030	.007	10.000	.000	-.001
dy (m)	509.377	.010	.000	10.000	.000
dz (m)	2204.183	.010	.001	.001	10.000
trop (%)	.000	.000	.000	.000	.000
bias 1 (cycle)	.000	.000	.000	.000	.000
bias 2 (cycle)	.000	.000	.000	.000	.000
bias 3 (cycle)	.000	.000	.000	.000	.000
bias 4 (cycle)	.000	.000	.000	.000	.000
bias 5 (cycle)	.000	.000	.000	.000	.000
bias 6 (cycle)	.000	.000	.000	.000	.000
bias 7 (cycle)	.000	.000	.000	.000	.000

Results of integer bias search:

.07096	4.10269	4.13895
0	0	0
0	0	0
0	1	-1
0	1	-1
0	1	-1
0	0	0

Ratio sum-of-squares(2) to sum-of-squares(1) 57.82

Interval between epochs (sec) 150.0
Epoch increment 5
Number of measurements used in solution 269
Number of measurements rejected 9
.S (cycles) .024
RDOP(norm to 60 sec)(m/cycle) .027

Elevation mask (deg) 15.0
Edit multiplier 3.5
Modified Hopfield troposphere model used

Best tracking C/A code positions
Station 1
Pdop 2.4

x (m)	-2281790.620	lat (dms)	N	36	48	10.27714
y (m)	-4576708.407	elon (dms)	E	243	30	2.58952
z (m)	3800536.544	wlon (dms)	W	116	29	57.40048
		ht (m)		1066.3787		

clock offset(s) .26688192D-03
freq offset(s/s) -.35618558D-07

	Code calibration(m)	Carrier calibration(m)
0 - 1	-1.4658	.0021
0 - 2	-1.5981	.0008
0 - 3	-1.7563	-.0001
0 - 4	2.1401	-.0003
0 - 5	.9419	.0013
0 - 6	1.9004	.0001
0 - 7	1.8247	-.0005

Station 2
Pdop 2.4

x (m)	-2279488.971	lat (dms)	N	36	49	36.34155
y (m)	-4576198.260	elon (dms)	E	243	31	16.52066
z (m)	3802740.876	wlon (dms)	W	116	23	43.47934
		ht (m)		1199.8767		

clock offset(s) .41353837D-04

	Code calibration(m)	Carrier calibration(m)
0 - 1	-.2471	-.0005
0 - 2	-.3911	-.0005
0 - 3	-.5190	-.0008
0 - 4	.2856	-.0003
0 - 5	-.0503	-.0010
0 - 6	-.1553	-.0009
0 - 7	-.2559	-.0011

TRIMBLE NAVIGATION, LTD
585 NORTH MARY AVENUE
SUNNYVALE, CALIFORNIA 94086
U.S.A.

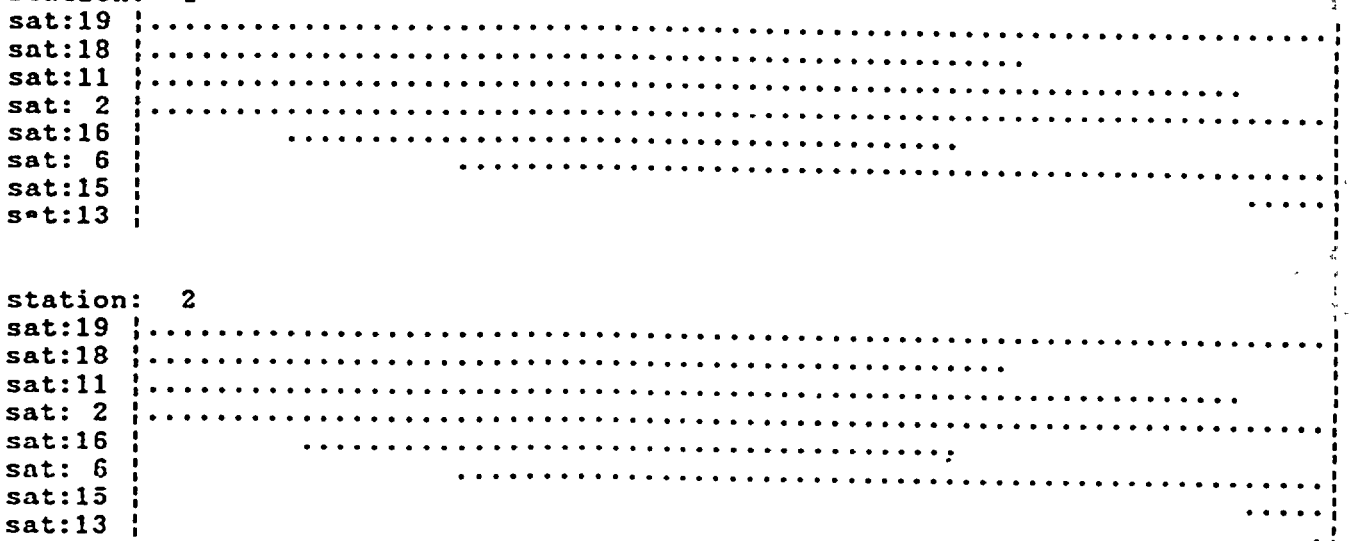
PROGRAM TRIMVEC
GPS RELATIVE POSITIONING SOLUTION
VERSION 90.060

File name: c:\tnl\yucout\09210911.fix
Coordinate system - WGS-84

Type solution: Double difference

Start date/time: 1991/ 4/ 1 21:13: 0. day of year 91 tow 162780.
Stop date/time: 1991/ 4/ 2 0: 7:30. day of year 92 tow 173250.

Data available



Ephemeris file used: c:\tnl\yucca\03090911.eph

SATELLITE	IODE	HEALTH	WEEK NO.	TOW(sec)	URA(m)
19	82	0	586	162600.00	2.0
18	192	0	586	162630.00	2.0
11	94	0	586	162600.00	2.0
2	114	0	586	162570.00	2.8
16	23	0	586	164160.00	2.0
6	59	0	586	165600.00	5.7
15	60	0	586	172680.00	2.8
13	186	0	586	173250.00	2.0

Broadcast satellite clock correction values

prn	af0	af1	af2	toc
19	.1251418144D-04	.1250555215D-11	.0000000000D+00	.1615D+06
18	.6661750376D-05	.4547473509D-12	.0000000000D+00	.1615D+06
11	-.2698996104D-03	-.4320099833D-11	.0000000000D+00	.1692D+06
2	-.3034435213D-04	-.1705302566D-11	.0000000000D+00	.1656D+06
16	.1760665327D-04	.2160049917D-11	.0000000000D+00	.1656D+06
6	-.2365391701D-03	-.1512034942D-10	.0000000000D+00	.1728D+06

13 :5313400179D-03 :1364242053D-11 .0000000000D+00 :1800D+06

Message file for station 1

Station ID: 0309 Session #: 091-1 Apr 1, 1991 21:09
Reference Position - LOW ACCURACY:
La.. = 0:00'00.000" N Long. = 0:00'00.000" W Height = 0.0 [meters]
Antenna height = 1.4343 [meters] (entered in the field in meters)
Long station name: SOLNW

Receiver serial # = 245
Antenna serial # = 71 (entered in the office)
NP Software = 4.30 SP Software = 4.20 Download Software = 2.05.00

Survey schedule: Start time = 21:12 Stop time = 03:45
Data-logging start time = 21:12
Data-logging stop time = 03:45

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
total L1	1566	1383	655	390	872	465	386	516	886
cont L1	1566	1383	655	390	872	465	386	516	886

SV Selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

	Best PDOP Position [2.3]	Mean Position [3207]
3D Position Latitude:	36:49'36.29052" N	36:49'36.38615" N
Longitude:	116:28'43.09365" W	116:28'43.44712" W
Height [m]:	1199.3	1190.9
2D Position Latitude:	Best PDOP Position [1.6] 36:49'36.24485" N	Mean Position [1538] 36:49'36.44383" N
Longitude:	116:28'43.45906" W	116:28'43.86407" W

Origin of station 1 coordinates : User input

STATION (mark) 1

input data file 1 : c:\tnl\yucca\03090911.dat
antenna height(m) 1.422

met values used: pressure(mb) 1013.0
temperature(deg C) 20.0
relative humidity(%) 50.0

x (m)	-2279485.446	lat (dms)	N	36 49	36.31997
y (m)	-4576193.839	elon (dms)	E	243 31	16.56844
z (m)	3802735.905	wlon (dms)	W	116 28	43.43156
		ht (m)		1192.4710	

Message file for station 2

Station ID: 0621 Session #: 091-1 Apr 1, 1991 21:08
Reference Position - LOW ACCURACY:
La.. = 0:00'00.000" N Long. = 0:00'00.000" W Height = 0.0 [meters]
Antenna height = 1.4450 [meters] (entered in the field in meters)
Long station name: STAGENW

Receiver serial # = 244
Antenna serial # = 70 (entered in the office)
NP Software = 4.30 SP Software = 4.20 Download Software = 2.05.00

Data-logging start time = 21:13
Data-logging stop time = 03:45

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
total L1	1565	1382	651	389	872	468	385	510	897
cont L1	1565	1344	651	389	872	468	385	510	884

SV selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum = of SVs = 3

	Best PDOP Position [2.3]	Mean Position [3258]
3D Position		
Latitude:	36:44'03.76797" N	36:44'03.79406" N
Longitude:	116:28'39.65533" W	116:28'39.74403" W
Height [m]:	896.5	889.2
2D Position	Best PDOP Position [1.6]	Mean Position [1530]
Latitude:	36:44'03.66839" N	36:44'03.97753" N
Longitude:	116:28'39.77039" W	116:28'39.87838" W

STATION (mark) 2

input data file 1 : c:\tnl\yucca\06210911.dat
antenna height(m) 1.432

met values used: pressure(mb) 1013.0
temperature(deg C) 20.0
relative humidity(%) 50.0

x (m)	-2282032.761	lat (dms)	N	36	44	3.72285
y (m)	-458515.031	elon (dms)	E	243	31	20.29344
z (m)	3794342.687	wlon (dms)	W	116	28	39.70656
		ht (m)		891.5366		

slope distance (m) 10259.1427 sigma (m) .022

	Forward	Backward
normal section azimuth (dms)	179 29 .69	359 29 2.92
vertical angle (dms)	-1 43 37.60	0 1 42.71

east(m)	north(m)	up(m)
92.435	-10254.065	-309.202

Delta lat(dms) 0 -5 32.59712
Delta lon(dms) 0 0 3.72500
Delta ht(m) -300.9344

Vector covariance matrix (m**2) :

	dx	dy	dz
dx	.353569375917D-03		
dy	.327532625476D-03	.642957878893D-03	
dz	-.211125712442D-03	-.390015389862D-03	.649123123104D-03

correlations:

	dx	dy	dz	trop	bias 1	bias 2	bias 3	bias 4	bias 5	bias 6	bias 7	bias 8
dx	1.000											
dy	.687	1.000										
dz	-.441	-.604	1.000									
trop	.000	.000	.000	1.000								
bias 1	.000	.000	.000	.000	1.000							
bias 2	.000	.000	.000	.000	.000	1.000						

bias 5	.000	.000	.000	.000	.000	.000	.000	.000	1.000	
bias 6	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.000
bias 7	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
1.000										
bias 8	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000	1.000									

	Solution	Sigma	Sensitivity to 10 meter error in station 1 coordinates		
dx (m)	-2547.315	.019	10.000	.000	.001
dy (m)	-5321.192	.025	.000	10.001	.002
dz (m)	-8393.218	.025	-.001	-.003	10.000
trop (%)	.000	.000	.000	.000	.000
bias 1 (cycle)	.000	.000	.000	.000	.000
bias 2 (cycle)	.000	.000	.000	.000	.000
bias 3 (cycle)	.000	.000	.000	.000	.000
bias 4 (cycle)	1.000	.000	.000	.000	.000
bias 5 (cycle)	.000	.000	.000	.000	.000
bias 6 (cycle)	.000	.000	.000	.000	.000
bias 7 (cycle)	.000	.000	.000	.000	.000
bias 8 (cycle)	.000	.000	.000	.000	.000

Results of integer bias search:

.57739	2.39675	4.76994
0	0	1
0	0	-1
0	-1	1
0	-1	0
0	-1	0
0	0	0
0	0	0

Ratio sum-of-squares(2) to sum-of-squares(1) 4.15

Interval between epochs (sec) 150.0
Epoch increment 5
Number of measurements used in solution 270
Number of measurements rejected 6
RMS (cycles) .072
RDOP(norm to 60 sec)(m/cycle) .027

Elevation mask (deg) 15.0
Edit multiplicr 3.5
Modified Hopfield troposphere model used

Best tracking C/A code positions
Station 1

Pdop	2.4					
x (m)	-2279487.214	lat (dms)	N	36	49	36.32613
y (m)	-4576199.227	elon (dms)	E	243	31	16.60153
z (m)	3802740.345	wlon (dms)	W	116	28	43.39847
		ht (m)		1199.6240		

clock offset(s) .42267853D-03
freq offset(s/s) -.35668336D-06

Code calibration(m)		Carrier calibration(m)
0 - 1	-.3271	-.0009
0 - 2	-.3352	-.0009
0 - 3	-.3359	-.0012
0 - 4	.1577	-.0005
0 - 5	-.1260	-.0013
0 - 6	-.1694	-.0012
0 - 7	.0229	-.0015

Station 2

x (m)	-2252035.004	lat (dms)	N	36	44	3.74559
y (m)	-4581520.592	clon (dms)	E	243	31	20.31243
z (m)	3794348.023	wlon (dms)	W	116	28	39.68757
		ht (m)		899.5183		

clock offset(s) .36962989D-03
freq offset(s/s) -.34650262D-06

de calibration(m)		Carrier calibration(m)
0 - 1	-1.7080	.0011
0 - 2	-1.7539	.0009
0 - 3	-1.2988	.0005
0 - 4	2.0557	-.0004
0 - 5	.4414	.0007
0 - 6	1.2529	.0005
0 - 7	1.4038	.0000

TRIMBLE NAVIGATION, LTD
585 NORTH MARY AVENUE
SUNNYVALE, CALIFORNIA 94086
U.S.A.

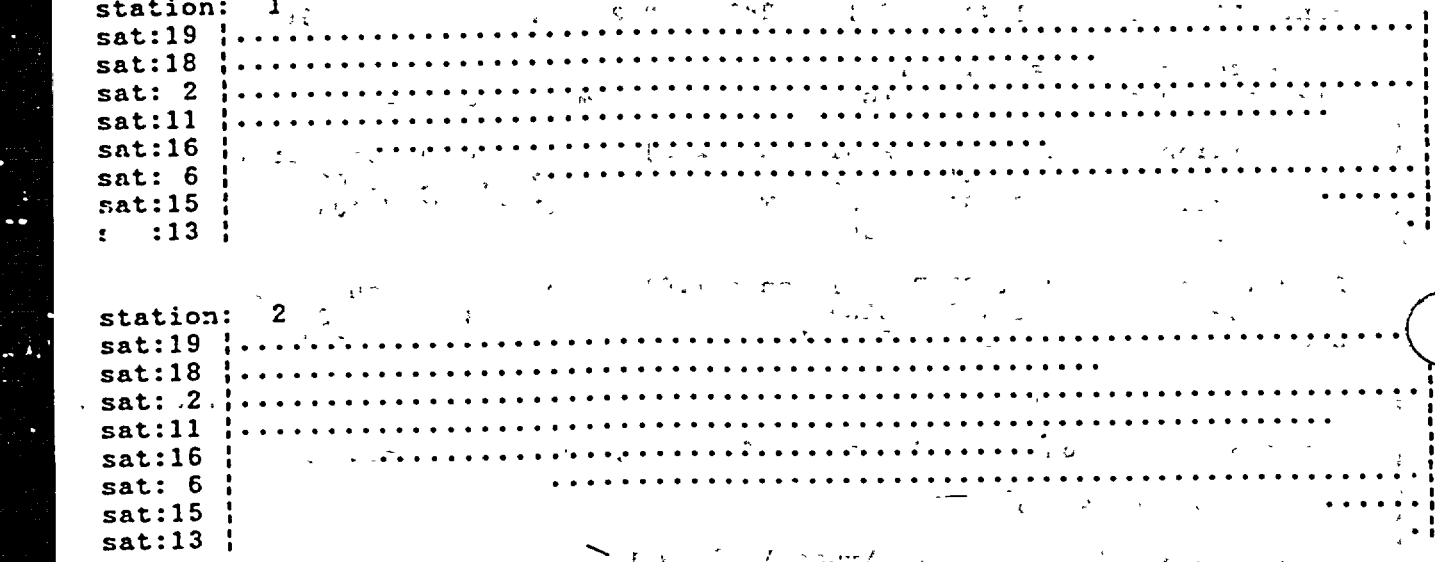
PROGRAM TRIMVEC
GPS RELATIVE POSITIONING SOLUTION
VERSION 90.060

File name: c:\tnl\yucout\21170911.fix
Coordinate system - WGS-84

Type solution: Double difference

Start date/time: 1991/ 4/ 1 21:14: 0. day of year 91 tow 162840.
Stop date/time: 1991/ 4/ 2 0: 8:30. day of year 92 tow 173310.

Data available



Ephemeris file used: c:\tnl\yucca\06210911.eph

SATELLITE	IODE	HEALTH	WEEK NO:	TOW(sec)	URA(m)
19	82	0	586	162600.00	2.0
18	192	0	586	162630.00	2.0
2	114	0	586	162780.00	2.8
11	94	0	586	162600.00	2.0
16	23	0	586	164220.00	2.0
6	59	0	586	165600.00	5.7
15	60	0	586	172620.00	2.8
13	186	0	586	173250.00	2.0

Broadcast satellite clock correction values

prn	af0	af1	af2	toc
19	.1251418194D-04	.1250555215D-11	.0000000000D+00	.1615D+06
18	.6661750376D-05	.4547473509D-12	.0000000000D+00	.1615D+06
2	-.3034435213D-04	-.1705302566D-11	.0000000000D+00	.1656D+06
11	-.2699996104D-03	-.4320099833D-11	.0000000000D+00	.1692D+06
16	.1750665327D-04	.2160049917D-11	.0000000000D+00	.1656D+06

```
      15   .5484558642D-04    .3410605132D-11    .0000000000D+00    .1728D+06
      13   .5313400179D-03    .1364242053D-11    .0000000000D+00    .1800D+06


 Message file for station 1
 ..........................................................................
Station ID: 0621  Session #: 091-1      Apr  1, 1991 21:08
Reference Position - LOW ACCURACY:
Lat.  =  0:00'00.000" N  Long. =   0:00'00.000" W  Height = 0.0  [meters]
Antenna height   =  1.4450  [meters]  (entered in the field in meters)
Long station name:  STAGENW

Receiver serial # = 244
Antenna serial  # = 70  (entered in the office)
NP Software = 4.30     SP Software = 4.20     Download Software = 2.05.00

Survey schedule:  Start time = 21:12  Stop time = 03:45
Data-logging start time = 21:13
Data-logging stop  time = 03:45

Tracking   SV  2  SV  6  SV 11  SV 12  SV 13  SV 15  SV 16  SV 18  SV 19
total L1    1565   1382    651    389    872    468    385    510    897
cont  L1    1565   1344    651    389    872    468    385    510    884

SV Selection mode = AUTOMATIC
Elevation mask    = 15     [degrees]   Minimum # of SVs  =  3

3D Position      Best PDOP Position [ 2.3]     Mean Position [3258]
Latitude:         36:44'03.76797" N             36:44'03.79406" N
Longitude:       116:28'39.65533" W            116:28'39.74403" W
Height [m]:               896.5                         889.2

2D Position      Best PDOP Position [ 1.6]     Mean Position [1530]
Latitude:         36:44'03.66839" N             36:44'03.97753" N
Longitude:       116:28'39.77039" W            116:28'39.87838" W

 ..........................................................................

 Origin of station 1 coordinates : Trimvec pseudo range solution

  STATION (mark)  1

 input data file  1 : c:\tnl\yucca\06210911.dat
  antenna height(m)    1.432

 met values used:  pressure(mb)          1013.0
                   temperature(deg C)      20.0
                   relative humidity(%)    50.0

   x (m)     -2282041.334      lat  (dms)  N    36    44    3.78833
   y (m)     -4581533.959      elon (dms)  E   243    31   20.32426
   z (m)      3794360.702      wlon (dms)  W   116    28   39.67574
                               ht (m)           918.9512

 Message file for station 2
 ..........................................................................
Station ID: 0517  Session #: 091-1      Apr  1, 1991 21:08
Reference Position - LOW ACCURACY:
Lat.  =  0:00'00.000" N  Long. =   0:00'00.000" W  Height = 0.0  [meters]
Antenna height   =  1.5370  [meters]  (entered in the field in meters)
Long station name:  FRANNW

Receiver serial # = 218
Antenna serial  # = 73  (entered in the office)
NP Software = 4.30     SP Software = 4.20     Download Software = 2.05.00
```

```
Survey schedule:  Start time = 21:12  Stop time = 03:45
Data-logging start time = 21:12
Data-logging stop  time = 03:38

Tracking   SV  2   SV  6   SV 11   SV 12   SV 13   SV 15   SV 16   SV 18   SV 19
total L1    1543    1358     655     365     844     470     384     514     896
cc    L1    1543    1358     655     365     844     470     384     514     871

SV Selection mode = AUTOMATIC
Elevation mask    = 15   [degrees]   Minimum # of SVs  =  3

3D Position      Best PDOP Position [ 1.9]     Mean Position [3189]
Latitude:          36:49'31.27586" N             36:49'31.27415" N
Longitude:        116:25'20.13685" W            116:25'20.64650" W
Height [m]:              1156.1                        1109.9

2D Position      Best PDOP Position [ 1.7]     Mean Position [1521]
Latitude:          36:49'31.18456" N             36:49'31.34970" N
Longitude:        116:25'20.94937" W            116:25'20.98089" W

.....

  STATION (mark)  2

input data file  1 : c:\tnl\yucca\05170911.dat
 antenna height(m)     1.525

met values used:  pressure(mb)          1013.0
                  temperature(deg C)      20.0
                  relative humidity(%)    50.0

  x (m)      -2275006.346      lat  (dms)  N    36    49  31.27030
    (m)      -4578477.596      elon (dms)  E   243    34  39.40178
  z (m)       3802578.533      wlon (dms)  W   116    25  20.59822
                               ht (m)          1137.8364

slope distance (m)        11241.2256      sigma (m)      .023

                                    Forward          Backward
normal section azimuth (dms)     26  2 31.53      206  4 30.74
vertical angle (dms)              1  3 54.45       0 -1 13.28

 east(m)   north(m)   up(m)          4934.397       10098.179         208.962

Delta lat(dms)      0    5  27.48197
Delta lon(dms)      0    3  19.07752
Delta ht(m)    218.8852

Vector covariance matrix (m**2) :
                              dx                    dy                    dz

        dx     .470376067305D-03
        dy     .437957983297D-03    .866513425999D-03
        dz    -.270328749690D-03   -.523405486519D-03    .862588248439D-03

 correlations:

             dx      dy      dz    trop bias 1 bias 2 bias 3 bias 4 bias 5 bias 6
bias 7 bias 8
    dx   1.000
    dy    .686   1.000
    dz   -.437   -.611   1.000
  trop    .000    .000    .000   1.000
bias 1    .000    .000    .000    .000   1.000
```

bias 4	.000	.000	.000	.000	.000	.000	.000	1.000		
bias 5	.000	.000	.000	.000	.000	.000	.000	.000	1.000	
bias 6	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.000
bias 7	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
1.000										
bias 8	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
000	1.000									

	Solution	Sigma	Sensitivity to 10 meter error in station 1 coordinates		
dx (m)	7034.988	.022	9.999	.001	-.002
dy (m)	3056.362	.029	-.001	10.000	-.001
dz (m)	8217.832	.029	.002	.002	10.000
trop (%)	.000	.000	.000	.000	.000
bias 1 (cycle)	.000	.000	.000	.000	.000
bias 2 (cycle)	.000	.000	.000	.000	.000
bias 3 (cycle)	-1.000	.000	.000	.000	.000
bias 4 (cycle)	.000	.000	.000	.000	.000
bias 5 (cycle)	.000	.000	.000	.000	.000
bias 6 (cycle)	.000	.000	.000	.000	.000
bias 7 (cycle)	.000	.000	.000	.000	.000
bias 8 (cycle)	.000	.000	.000	.000	.000

Results of integer bias search:

.58952 2.83690 4.99671

0	0	-1
0	1	-1
0	0	1
0	1	0
0	1	0
0	0	0
0	0	0

Ratio sum-of-squares(2) to sum-of-squares(1) 4.90

Interval between epochs (sec) 150.0
Epoch increment 5
Number of measurements used in solution 268
Number of measurements rejected 8
RMS (cycles) .072
RDOP(norm to 60 sec)(m/cycle) .027

Elevation mask (deg) 15.0
Edit multiplier 3.5
Modified Hopfield troposphere model used

Best tracking C/A code positions
Station 1
Pdop 2.4

x (m)	-2282035.004	lat (dms)	N	36	44	3.74559
y (m)	-4581520.592	elon (dms)	E	243	31	20.31243
z (m)	3794348.023	wlon (dms)	W	116	28	39.62757
		ht (m)		899.5183		

clock offset(s) .36962989D-03
freq offset(s/s) -.31650262D-06

	Code calibration(m)	Carrier calibration(m)
0 - 1	-1.7080	.0011
0 - 2	-1.7539	.0009
0 - 3	-1.2938	.0003
0 - 4	2.0557	-.0001
0 - 5	.1414	.0007
0 - 6	1.2529	.0005
0 - 7	1.4038	.0000

x (m)	-2274999.935	lat (dms)	N	36	49	31.21937
y (m)	-4578465.170	elon (dms)	E	243	34	39.41033
z (m)	3805566.103	wlon (dms)	W	116	25	20.58967
		ht (m)		-1119.1946		

clock offset(s) .39914307D-03
freq offset(s/s) -.11329631D-06

Code calibration(m)		Carrier calibration(m)
0 - 1	-.1235	-.0003
0 - 2	-.1348	-.0005
0 - 3	-.4004	-.0032
0 - 4	.4941	-.0005
0 - 5	.3066	-.0006
0 - 6	.2651	-.0006
0 - 7	.0093	.0020

TRIMBLE NAVIGATION, LTD
585 NORTH MARY AVENUE
SUNNYVALE, CALIFORNIA 94086
U.S.A.

PROGRAM TRIMVEC
GPS RELATIVE POSITIONING SOLUTION
VERSION 90.060

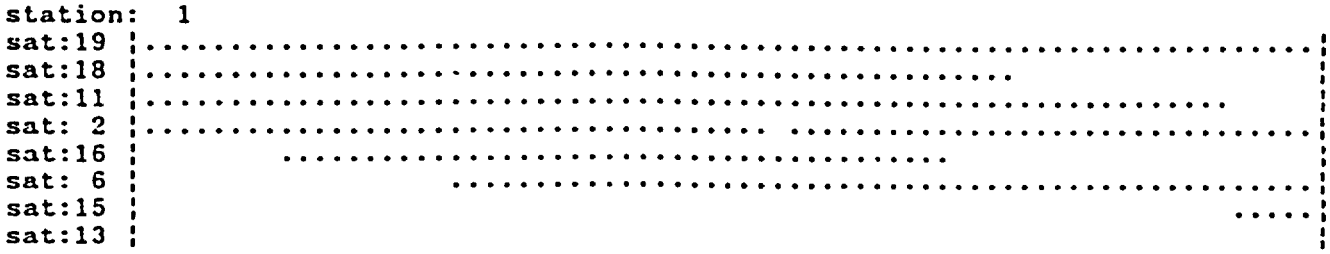
File name: c:\tnl\yucout\09170911.fix
Coordinate system - WGS-84

Type solution: Double difference

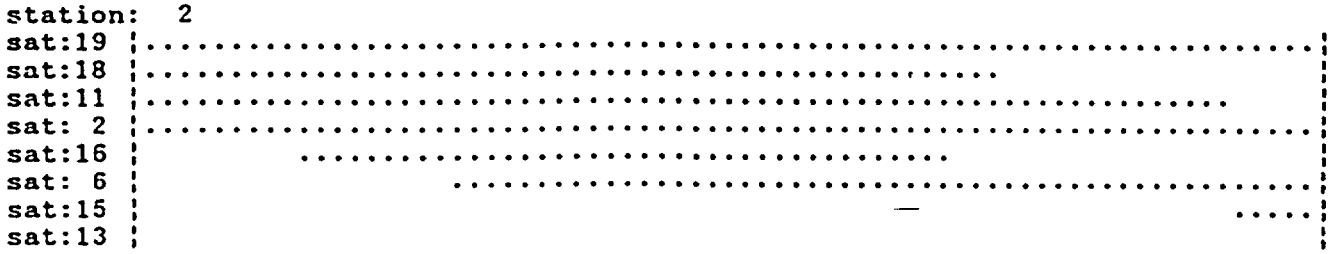
Start date/time: 1991/ 4/ 1 21:13: 0. day of year 91 tow 162780.
Stop date/time: 1991/ 4/ 2 0: 7:30. day of year 92 tow 173250.

Data available

station: 1



station: 2



Ephemeris file used: c:\tnl\yucca\03090911.eph

SATELLITE	IODE	HEALTH	WEEK NO.	TOW(sec)	URA(m)
19	82	0	586	162600.00	2.0
18	192	0	586	162630.00	2.0
11	94	0	586	162600.00	2.0
2	114	0	586	162570.00	2.8
16	23	0	586	164160.00	2.0
6	59	0	586	165600.00	5.7
15	60	0	586	172680.00	2.8
13	186	0	586	173250.00	2.0

Broadcast satellite clock correction values

prn	af0	af1	af2	toc
19	.1251418144D-04	.1250355215D-11	.0000000000D+00	.1615D+06
18	.6661750376D-05	.4547473509D-12	.0000000000D+00	.1615D+06
11	-.2698906104D-03	-.1320099833D-11	.0000000000D+00	.1692D+06
2	-.3034435213D-04	-.1705302566D-11	.0000000000D+00	.1656D+06
16	.1760665327D-04	.2160049917D-11	.0000000000D+00	.1656D+06
6	-.2365391701D-03	-.1512034942D-10	.0000000000D+00	.1728D+06
15	.5484558642D-04	.3410605132D-11	.0000000000D+00	.1728D+06

TRIMBLE NAVIGATION, LTD
585 NORTH MARY AVENUE
SUNNYVALE, CALIFORNIA 94086
U.S.A.

PROGRAM TRIMVEC
GPS RELATIVE POSITIONING SOLUTION
VERSION 90.060

File name: c:\tnl\yucout\09170911.fix
Coordinate system - WGS-84

Type solution: Double difference

Start date/time: 1991/ 4/ 1 21:13: 0. day of year 91 tow 162780.
Stop date/time: 1991/ 4/ 2 0: 7:30. day of year 92 tow 173250.

Data available

Ephemeris file used: c:\tnl\yucca\03090911.eph

SATELLITE	IODE	HEALTH	WEEK NO.	TOW(sec)	URA(m)
19	82	0	586	162600.00	2.0
18	192	0	586	162630.00	2.0
11	94	0	586	162600.00	2.0
2	114	0	586	162570.00	2.8
16	23	0	586	164160.00	2.0
6	59	0	586	165600.00	5.7
15	60	0	586	172680.00	2.8
13	186	0	586	173250.00	2.0

Broadcast satellite clock correction values

prn	af0	af1	af2	toc
19	.1251418144D-04	.1250555215D-11	.0000000000D+00	.1615D+06
18	.6661750376D-05	.4547473509D-12	.0000000000D+00	.1615D+06
11	-.2698906104D-03	-.4320099833D-11	.0000000000D+00	.1692D+06
2	-.3034435213D-04	-.1705302566D-11	.0000000000D+00	.1656D+06
16	.1760665327D-04	.2160049917D-11	.0000000000D+00	.1656D+06
6	-.2365391701D-03	-.1512034942D-10	.0000000000D+00	.1728D+06

```
Message file for station 1
.....
Station ID: 0309  Session =: 091-1      Apr  1, 1991 21:09
Reference Position - LOW ACCURACY:
La     =   0:00'00.000" N  Long. =    0:00'00.000" W  Height = 0.0  [meters]
Antenna height    =  1.4343  [meters]  (entered in the field in meters)
Long station name:  SOLNW

Receiver serial = = 245
Antenna serial  = = 71  (entered in the office)
NP Software = 4.30      SP Software = 4.20      Download Software = 2.05.00

Survey schedule:  Start time = 21:12  Stop time = 03:45
Data-logging start time = 21:12
Data-logging stop  time = 03:45

Tracking   SV  2   SV  6   SV 11   SV 12   SV 13   SV 15   SV 16   SV 18   SV 19
total L1     1566    1383     655     390     872     465     386     516     886
cont  L1     1566    1383     655     390     872     465     386     516     886

SV Selection mode = AUTOMATIC
Elevation mask    = 15      [degrees]   Minimum # of SVs  =  3

3D Position      Best PDOP Position [ 2.3]     Mean Position [3207]
Latitude:         36:49'36.29052" N              36:49'36.38615" N
Longitude:       116:28'43.09365" W             116:28'43.44712" W
Height [m]:              1199.3                         1190.9

2D Position      Best PDOP Position [ 1.6]     Mean Position [1538]
Latitude:         36:49'36.24485" N              36:49'36.44383" N
Longitude:       116:28'43.45906" W             116:28'43.86407" W

.....

Origin of station 1 coordinates : User input

   STATION (mark)  1

input data file  1 : c:\tnl\yucca\03090911.dat
 antenna height(m)      1.422

met values used:  pressure(mb)          1013.0
                  temperature(deg C)      20.0
                  relative humidity(%)    50.0

   x (m)     -2279485.446      lat  (dms)  N    36    49  36.31997
   y (m)     -4570193.839      elon (dms)  E   243    31  16.56844
   z (m)      3802735.905      wlon (dms)  W   116    28  43.43156
                               ht (m)          1192.4710

Message file for station 2
.....
Station ID: 0517  Session =: 091-1      Apr  1, 1991 21:08
Reference Position - LOW ACCURACY:
La     =   0:00'00.000" N  Long. =    0:00'00.000" W  Height = 0.0  [meters]
Antenna height    =  1.5370  [meters]  (entered in the field in meters)
Long station name:  FRANNW

Receiver serial = = 246
Antenna serial  = = 73  (entered in the office)
NP Software = 4.30      SP Software = 4.20      Download Software = 2.05.00
```

Data-logging stop time = 03:38

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
total L1	1543	1358	655	365	844	470	384	514	896
cont L1	1543	1358	655	365	844	470	384	514	871

SV election mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

3D Position	Best PDOP Position [1.9]	Mean Position [3189]
Latitude:	36:49'31.27586" N	36:49'31.27415" N
Longitude:	116:25'20.13665" W	116:25'20.64650" W
Height [m]:	1156.1	1109.9

2D Position	Best PDOP Position [1.7]	Mean Position [1521]
Latitude:	36:49'31.18456" N	36:49'31.34970" N
Longitude:	116:25'20.94937" W	116:25'20.98089" W

STATION (mark) 2

input data file 1 : c:\tnl\yucca\05170911.dat
antenna height(m) 1.525

met values used: pressure(mb) 1013.0
temperature(deg C) 20.0
relative humidity(%) 50.0

x (m)	-2274997.766	lat (dms)	N	36	49	31.20649
y (m)	-4578458.664	elon (dms)	E	243	34	39.37191
z (m)	3802560.521	wlon (dms)	W	116	25	20.62809
		ht (m)		1110.4126		

slope distance (m) 5029.8570 sigma (m) .011

	Forward	Backward
normal section azimuth (dms)	91 46 46.39	271 48 47.94
vertical angle (dms)	0-57 26.41	0 0 57.32

east(m)	north(m)	up(m)
5026.729	-156.176	-84.038

Delta lat(dms) 0 0 -5.11348
Delta lon(dms) 0 3 -22.80347
Delta ht(m) -82.0584

Vector covariance matrix (m**2) :

	dx	dy	dz
dx	.158302192293D-03		
dy	.152268666987D-03	.279862828852D-03	
dz	-.924197030552D-04	-.155181786714D-03	.242762533428D-03

correlations:

	dx	dy	dz	trop	bias 1	bias 2	bias 3	bias 4	bias 5	bias 6	bias 7	bias 8
dx	1.000											
dy	.723	1.000										
dz	-.471	-.595	1.000									
trop	.000	.000	.000	1.000								
bias 1	.000	.000	.000	.000	1.000							
bias 2	.000	.000	.000	.000	.000	1.000						
bias 3	.000	.000	.000	.000	.000	.000	1.000					

TRIMBLE NAVIGATION, LTD
585 NORTH MARY AVENUE
SUNNYVALE, CALIFORNIA 94086
U.S.A.

PROGRAM TRIMVEC
GPS RELATIVE POSITIONING SOLUTION
VERSION 90.060

File name: c:\tnl\yucout2\09210891.fix
Coordinate system - WGS-84

Type solution: Double difference

Start date/time: 1991/ 3/30 21:21: 0. day of year 89 tow 595260.
Stop date/time: 1991/ 3/31 0:15:30. day of year 90 tow 930.

Data available

station: 1
sat:19 |.....|
sat:11 |.....|
sat:18 |.....|
sat: 2 |.....|
sat:16 |.....|
sat: 6 |.....|
sat:15 |.....|

station: 2
sat:19 |.....|
sat:11 |.....|
sat:18 |.....|
sat: 2 |.....|
sat:16 |.....|
sat: 6 |.....|
sat:15 |.....|

Ephemeris file used: c:\tnl\yucca\03090891.eph

SATELLITE	IODE	HEALTH	WEEK NO.	TOW(sec)	URA(m)
19	12	0	585	595020.00	2.0
11	65	0	585	594960.00	2.0
18	144	0	585	595200.00	2.0
2	64	0	585	594960.00	2.8
16	213	0	585	596700.00	2.0
6	18	0	585	598080.00	5.7
15	12	0	586	270.00	2.8

Broadcast satellite clock correction values

prn	af0	af1	af2	toc
19	.1225206773D-04	.1250555215D-11	.0000000000D+00	.5935D+06
11	-.2691354603D-03	-.4320099833D-11	.0000000000D+00	.6012D+06
18	.6580259651D-05	.5684341886D-12	.0000000000D+00	.5935D+06
2	-.3002591011D-04	-.1818989404D-11	.0000000000D+00	.5976D+06
15	.1724204049D-04	.1932676241D-11	.0000000000D+00	.5976D+06
6	-.2339370549D-03	-.1432454155D-10	.0000000000D+00	.0000D+00

```
bias 6    .000   .000   .000   .000   .000   .000   .000   .000   .000   1.000
bias 7    .000   .000   .000   .000   .000   .000   .000   .000   .000   .000
 1.000
bias 8    .000   .000   .000   .000   .000   .000   .000   .000   .000   .000
  .000  1.000
```

	Solution	Sigma	Sensitivity to 10 meter error in station 1 coordinates		
dx (m)	4487.680	.013	10.000	.001	-.001
dy (m)	-2264.825	.017	-.002	10.001	.000
dz (m)	-175.383	.016	.001	-.001	10.000
trop (%)	.000	.000	.000	.000	.000
bias 1 (cycle)	.000	.000	.000	.000	.000
bias 2 (cycle)	.000	.000	.000	.000	.000
bias 3 (cycle)	.000	.000	.000	.000	.000
bias 4 (cycle)	.000	.000	.000	.000	.000
bias 5 (cycle)	.000	.000	.000	.000	.000
bias 6 (cycle)	.000	.000	.000	.000	.000
bias 7 (cycle)	.000	.000	.000	.000	.000
bias 8 (cycle)	.000	.000	.000	.000	.000

```
 Results of integer bias search:
          .28967              4.01222              4.41104

                0                    0                    0
                0                    0                    0
                0                   -1                    1
                0                   -1                    1
                0                   -1                    1
                0                    0                    0
                0                    0                    0
F  io sum-of-squares(2) to sum-of-squares(1)      13.85

 Interval between epochs (sec)  150.0
 Epoch increment      5
 Number of measurements used in solution   269
 Number of measurements rejected             9
 RMS (cycles)          .050
 RDOP(norm to 60 sec)(m/cycle)         .027

 Elevation mask (deg)      15.0
 Edit multiplier     3.5
 Modified Hopfield troposphere model used

 Best tracking C/A code positions
 Station  1
 Pdop          2.4
   x (m)    -2279487.214      lat  (dms)  N    36    49   36.32616
   y (m)    -4576199.227      elon (dms)  E   243    31   16.60153
   z (m)     3802740.345      wlon (dms)  W   116    28   43.39847
                              ht (m)          1199.6240

 clock offset(s)          .42267853D-03
 freq  offset(s/s)       -.35668336D-06

  Code calibration(m)      Carrier calibration(m)
 0 -  1        -.3271          -.0009
 0 -  2        -.5352          -.0009
 0 -  3        -.3359          -.0012
 0 -  4         .1577          -.0005
 0 -  5        -.1200          -.0013
 0 -  6        -.1694          -.0012
 0 -  7         .0229          -.0015
 Station  2
 Pdop          2.1
```

y (m)	-4578465.170	elon (dms)	E	243	54	39.41033
z (m)	3802566.103	wlon (dms)	W	116	25	20.58967
		ht (m)		1119.1946		

clock offset(s) .39914307D-03
freq offset(s/s) -.11329631D-06

Code calibration(m)		Carrier calibration(m)
1	-.1235	-.0003
0 - 2	-.1348	-.0005
0 - 3	-.4004	.0032
0 - 4	.4941	-.0005
0 - 5	.3066	-.0006
0 - 6	.2651	-.0006
0 - 7	.0093	.0020

TRIMBLE NAVIGATION, LTD
585 NORTH MARY AVENUE
SUNNYVALE, CALIFORNIA 94086
U.S.A.

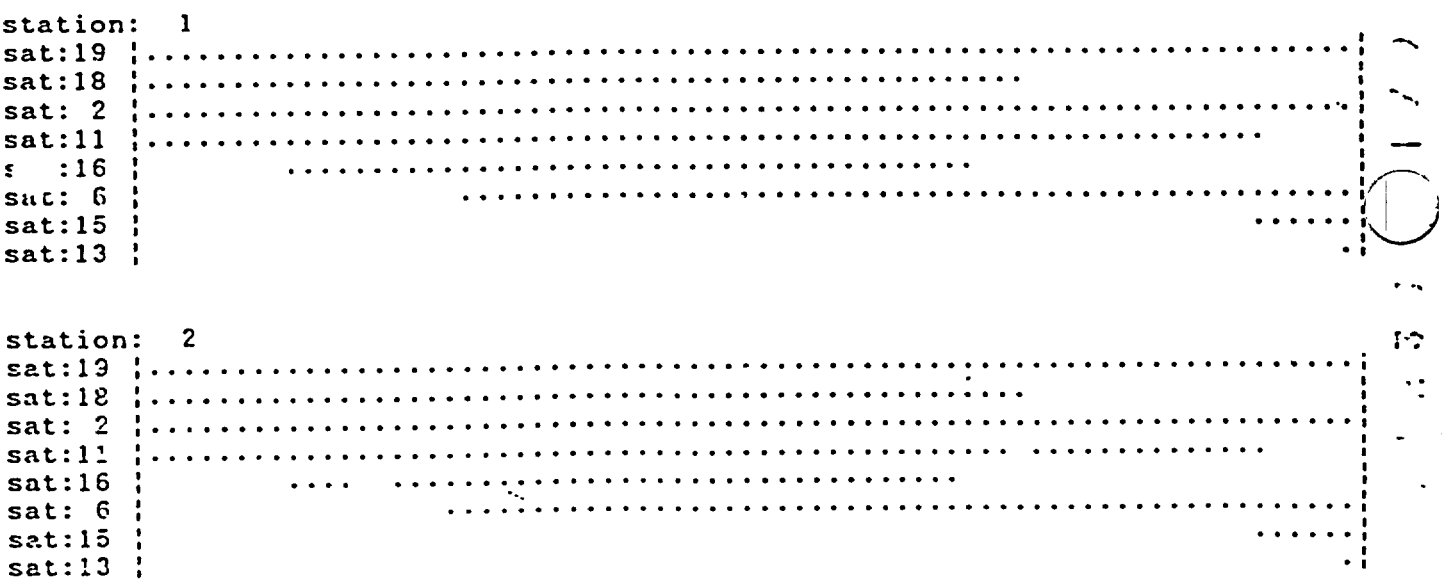
PROGRAM TRIMVEC
GPS RELATIVE POSITIONING SOLUTION
VERSION 90.060

File name: c:\tnl\yucout\21050911.fix
Coordinate system - WGS-84

Type solution: Double difference

Start date/time: 1991/ 4/ 1 21:14: 0. day of year 91 tow 162840.
Stop date/time: 1991/ 4/ 2 0: 8:30. day of year 92 tow 173310.

Data available



Ephemeris file used: c:\tnl\yucca\06210911.eph

SATELLITE	IODE	HEALTH	WEEK NO.	TOW(sec)	URA(m)
19	82	0	586	162600.00	2.0
18	192	0	586	162630.00	2.0
2	114	0	586	162780.00	2.8
11	94	0	586	162600.00	2.0
16	23	0	586	164220.00	2.0
6	59	0	586	165600.00	5.7
15	60	0	586	172320.00	2.8
13	186	0	586	173250.00	2.0

Broadcast satellite clock correction values

prn	af0	af1	af2	toc
19	.12314181 14D-04	.1250355215D-11	.0000000000D+00	.1615D+06
18	.6661730256D-05	.1717172708D-12	.0000000000D+00	.1615D+06

11	-.2688996104D-03	-.4320099833D-11	.0000000000D+00	.1692D+06
16	.2760665327D-04	.2160049917D-11	.0000000000D+00	.1656D+06
6	-.2365391701D-03	-.1512034942D-10	.0000000000D+00	.1728D+06
15	.5484558642D-04	.3410605132D-11	.0000000000D+00	.1728D+06
13	.5313400179D-03	.1364242053D-11	.0000000000D+00	.1800D+06

M sage file for station 1

Station ID: 0621 Session #: 091-1 Apr 1, 1991 21:08
Reference Position - LOW ACCURACY:
Lat. = 0:00'00.000" N Long. = 0:00'00.000" W Height = 0.0 [meters]
Antenna height = 1.4450 [meters] (entered in the field in meters)
Long station name: STAGENW

Receiver serial # = 244
Antenna serial # = 70 (entered in the office)
NP Software = 4.30 SP Software = 4.20 Download Software = 2.05.00

Survey schedule: Start time = 21:12 Stop time = 03:45
Data-logging start time = 21:13
Data-logging stop time = 03:45

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
total L1	1565	1382	651	389	872	468	385	510	897
cont L1	1565	1344	651	389	872	468	385	510	884

SV Selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

	Best PDOP Position [2.3]	Mean Position [3258]
3D Position		
Latitude:	36:44'03.76797" N	36:44'03.79406" N
Longitude:	116:28'39.65533" W	116:28'39.74403" W
Height [m]:	896.5	889.2
2D Position	Best PDOP Position [1.6]	Mean Position [1530]
Latitude:	36:44'03.66839" N	36:44'03.97753" N
Longitude:	116:28'39.77039" W	116:28'39.87838" W

Origin of station 1 coordinates : Trimvec pseudo range solution

STATION (mark) 1

input data file 1 : c:\tnl\yucca\06210911.dat
antenna height(m) 1.432

met values used: pressure(mb) 1013.0
temperature(deg C) 20.0
relative humidity(%) 50.0

x (m)	-2282041.334	lat (dms)	N	36	44	3.78833
y (m)	-1581533.958	elon (dms)	E	243	31	20.32426
z (m)	3794360.702	wlon (dms)	W	116	28	39.67574
		ht (m)		918.9512		

M sage file for station 2

Station ID: 0205 Session #: 091-1 Apr 1, 1991 21:08
Reference Position - LOW ACCURACY:
Lat. = 0:00'00.000" N Long. = 0:00'00.000" W Height = 0.0 [meters]
Antenna height = 1.5950 [meters] (entered in the field in meters)
Long station name: TR14SE

```
Antenna serial  = = 72  (entered in the office)
NP Software = 4.30     SP Software = 4.20     Download Software = 2.03.00

Survey schedule:  Start time = 21:12  Stop time = 03:45
Data-logging start time = 21:12
Data-logging stop  time = 02:57

Tr  king    SV  2   SV  6   SV 11   SV 12   SV 13   SV 15   SV 16   SV 18   SV 19
total L1     1377    1193     657     199     678     470     354     513     896
cont  L1     1377    1193     657     199     678     470     320     513     870

SV Selection mode = AUTOMATIC
Elevation mask  = = 15    [degrees]   Minimum = of SVs  =  3

3D Position      Best PDOP Position [ 2.3]     Mean Position [2686]
Latitude:         36:50'57.54391" N             36:50'57.57286" N
Longitude:       116:25'48.66882" W            116:25'48.72420" W
Height [m]:             1154.1                        1149.4

2D Position      Best PDOP Position [ 1.7]     Mean Position [1568]
Latitude:         36:50'57.47261" N             36:50'57.71237" N
Longitude:       116:25'49.08215" W            116:25'48.90897" W

.....

  STATION (mark)  2

input data file  1 : c:\tnl\yucca\02050911.dat
 antenna height(m)     1.584

met values used:  pressure(mb)          1013.0
                  temperature(deg C)      20.0
                  relative humidity(%)    50.0

   x (m)      -2274933.445      lat  (dms)  N   36   50  57.56369
   y (m)      -4576766.782      elon (dms)  E  243   34  11.31313
   z (m)       3304730.872      wlon (dms)  W  116   25  48.68687
                                ht (m)          1176.1346

slope distance (m)      13445.7606     sigma (m)     .028

                                    Forward          Backward
normal section azimuth (dms)     18 22 13.91      198 23 56.33
vertical angle (dms)              1  2  7.64        0 -1 12.67

 east(m)   north(m)   up(m)          4236.887       12758.457        242.980

Delta lat(dms)     0    6  53.77536
Delta lon(dms)     0    2  50.98887
Delta ht(m)    257.1834

Vector covariance matrix (m**2) :
                          dx                    dy                    dz

        dx    .633541627142D-03
        dy    .598788689432D-03    .119682608457D-02
        dz   -.374957937539D-03   -.712311433259D-03    .115303759161D-02

correlations:

             dx      dy      dz    trop bias 1 bias 2 bias 3 bias 4 bias 5 bias 6
bias 7 bias 8
     dx  1.000
     dy   .682   1.000
     dz  -.439   -.606   1.000
```

bias 1	.000	.000	.000	.000	1.000					
bias 2	.000	.000	.000	.000	.000	1.000				
bias 3	.000	.000	.000	.000	.000	.000	1.000			
bias 4	.000	.000	.000	.000	.000	.000	.000	1.000		
bias 5	.000	.000	.000	.000	.000	.000	.000	.000	1.000	
bias 6	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.000
bias 7	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000										
bias 8	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
.000	1.000									

	Solution	Sigma	Sensitivity to 10 meter error in station 1 coordinates		
dx (m)	7107.889	.025	9.999	.001	-.002
dy (m)	4767.176	.035	-.001	-10.000	-.002
dz (m)	10370.170	.034	.002	.003	10.000
trop (%)	.000	.000	.000	.000	.000
bias 1 (cycles)	.000	.000	.000	.000	.000
bias 2 (cycles)	.000	.000	.000	.000	.000
bias 3 (cycles)	-1.000	.000	.000	.000	.000
bias 4 (cycles)	.000	.000	.000	.000	.000
bias 5 (cycles)	.000	.000	.000	.000	.000
bias 6 (cycles)	.000	.000	.000	.000	.000
bias 7 (cycles)	-1.000	.000	.000	.000	.000
bias 8 (cycles)	.000	.000	.000	.000	.000

Results of integer bias search:

.76215	2.91756	4.67781
0	0	-1
0	1	-1
0	0	1
0	1	0
0	1	0
0	0	0
0	0	0

Ratio sum-of-squares(2) to sum-of-squares(1) 3.83

Interval between epochs (sec) 150.0
Epoch increment 5
Number of measurements used in solution 266
Number of measurements rejected 8
RMS (cycles) .082
RDOP(norm to 60 sec)(m/cycle) .027

Elevation mask (deg) 15.0
Edit multiplier 3.5
Modified Hopfield troposphere model used

Best tracking C/A code positions
Station 1

Pdop	2.4					
x (m)	-2282035.004	lat (dms)	N	36	44	3.74559
y (m)	-4581520.592	elon (dms)	E	243	31	20.31243
z (m)	3794348.023	wlon (dms)	W	116	28	39.68757
		ht (m)		899.5183		

clock offset(s) .36962989D-03
f req offset(s/s) -.34650262D-06

	Code calibration(m)	Carrier calibration(m)
0 - 1	-1.7080	.0011
0 - 2	-1.7539	.0009
0 - 3	-1.2988	.0005
0 - 4	2.0557	-.0004
0 - 5	.4414	.0007

0 - 7	1.4038					.0000

Station 2

Pdop	2.4				
X (m)	-2274927.344	lat (dms)	N	36	50 57.51763
Y (m)	-4576753.644	elon (dms)	E	243	34 11.29762
Z (m)	3804718.246	wlon (dms)	W	116	25 48.70238
		ht (m)		1156.9751	

clock offset(s)	.11915637D-03
freq offset(s/s)	-.31736206D-07

	Code calibration(m)	Carrier calibration(m)
0 - 1	-1.1504	.0016
0 - 2	.6675	.0005
0 - 3	.6401	-.0002
0 - 4	2.1748	-.0006
0 - 5	1.1089	.0014
0 - 6	1.1069	.0003
0 - 7	.9854	-.0005

TRIMBLE NAVIGATION, LTD
585 NORTH MARY AVENUE
SUNNYVALE, CALIFORNIA 94086
U.S.A.

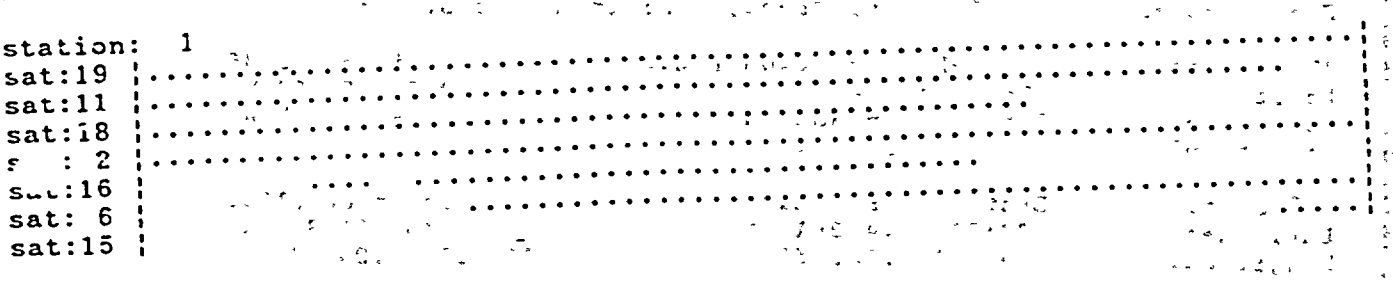
PROGRAM TRIMVEC
GPS RELATIVE POSITIONING SOLUTION
VERSION 90.060

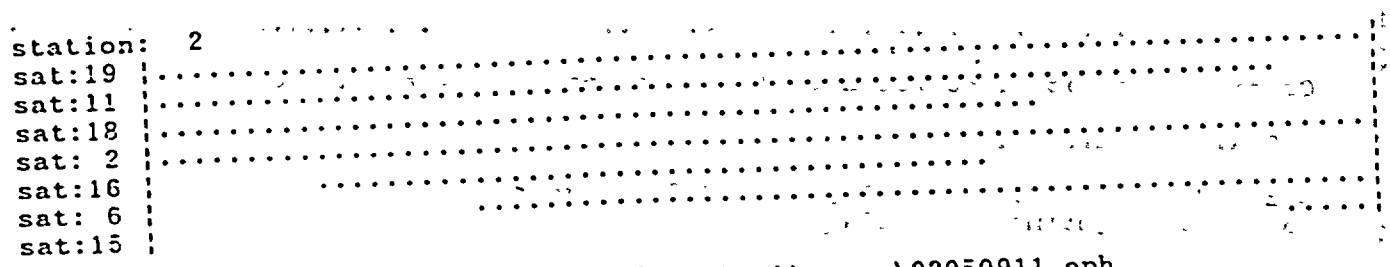
File name: c:\tnl\yucout\05170911.fix
Coordinate system - WGS-84

Type solution: Double difference

Start date/time: 1991/ 4/ 1 21:13: 0. day of year 91 tow 162780.
Stop date/time: 1991/ 4/ 2 0: 7:30. day of year 92 tow 173250.

Data available





Ephemeris file used: c:\tnl\yucca\02050911.eph

SATELLITE	IODE	HEALTH	WEEK NO.	TOW(sec)	URA(m)
19	82	0	586	162600.00	2.0
11	94	0	586	162600.00	2.0
18	192	0	586	162630.00	2.0
2	114	0	586	162480.00	2.8
16	23	0	586	164190.00	2.0
6	58	0	586	165570.00	5.7
15	60	0	586	172590.00	2.8

Broadcast satellite clock correction values

prn	af0	af1	af2	toc
19	.1251[illegible]144D-04	.1250555215D-11	.0000000000D+00	.1615D+06
11	-.2699[illegible]104D-03	-.4320099833D-11	.0000000000D+00	.1692D+06
18	.6861[illegible]376D-05	.4547473509D-12	.0000000000D+00	.1615D+06
2	-.208[illegible]813D-04	-.1705302966D-11	.0000000000D+00	.1656D+06

```
      0   -.2364468878D-03   -.1512034942D-10    .0000000000D+00    .1652D+06
     15   .5484558642D-04    .3410605132D-11    .0000000000D+00    .1728D+06


 Message file for station 1
 ..........................................................................
Station ID: 0205  Session #: 091-1      Apr  1, 1991 21:08
Reference Position - LOW ACCURACY:
Lat.  =  0:00'00.000" N  Long. =   0:00'00.000" W  Height = 0.0  [meters]
Antenna height   =  1.5950  [meters]  (entered in the field in meters)
Long station name:  TR14SE

Receiver serial # = 247
Antenna serial  # = 72  (entered in the office)
NP Software = 4.30     SP Software = 4.20     Download Software = 2.05.00

Survey schedule:  Start time = 21:12  Stop time = 03:45
Data-logging start time = 21:12
Data-logging stop  time = 02:57

Tracking   SV  2  SV  6  SV 11  SV 12  SV 13  SV 15  SV 16  SV 18  SV 19
total L1    1377   1193    657    199    678    470    354    513    896
cont  L1    1377   1193    657    199    678    470    320    513    870

SV Selection mode = AUTOMATIC
Elevation mask    = 15     [degrees]   Minirum # of SVs  =  3

3D Position     Best PDOP Position [ 2.3]     Mean Position [2686]
Latitude:         36:50'57.54391" N             36:50'57.57286" N
Longitude:       116:25'48.66882" W            116:25'48.72420" W
Height [m]:              1154.1                        1149.4

2D Position     Best PDOP Position [ 1.7]     Mean Position [1568]
Latitude:         36:50'57.47261" N             36:50'57.71237" N
Longitude:       116:25'49.08215" W            116:25'48.90897" W

 ..........................................................................

 Origin of station 1 coordinates : Trimvec pseudo range solution

   STATION (mark)  1

 input data file  1 : c:\tnl\yucca\02050911.dat
  antenna height(m)     1.584

 met values used:  pressure(mb)          1013.0
                   temperature(deg C)      20.0
                   relative humidity(%)    50.0

   x (m)      -2274932.912     lat  (dms)  N   36    50  57.57081
   y (m)      -4576765.798     elon (dms)  E  243    34  11.31473
   z (m)       3804730.308     wlon (dms)  W  116    25  48.68527
                               ht (m)          1174.9008

 Message file for station 2
 ..........................................................................
Station ID: 0517  Session #: 091-1      Apr  1, 1991 21:08
Reference Position - LOW ACCURACY:
Lat.  =  0:00'00.000" N  Long. =   0:00'00.000" W  Height = 0.0  [meters]
Antenna height   =  1.5370  [meters]  (entered in the field in meters)
Long station name:  FRANNW

Receiver serial # = 248
Antenna serial  # = 72  (entered in the office)
NP Software = 4.30     SP Software = 4.20     Download Software = 2.05.00
```

```
Survey schedule:  Start time = 21:12  Stop time = 03:45
Data-logging start time = 21:12
Data-logging stop  time = 03:38

Tracking    SV  2   SV  6   SV 11   SV 12   SV 13   SV 15   SV 16   SV 18   SV 19
total L1     1543    1358     655     365     844     470     384     514     896
cont  L1     1543    1358     655     365     844     470     384     514     871

SV Selection mode = AUTOMATIC
Elevation mask    = 15     [degrees]   Minimum # of SVs  =  3

3D Position      Best PDOP Position [ 1.9]      Mean Position [3189]
Latitude:          36:49'31.27586" N              36:49'31.27415" N
Longitude:        116:25'20.13685" W             116:25'20.64650" W
Height [m]:                 1156.1                         1109.9

2D Position      Best PDOP Position [ 1.7]      Mean Position [1521]
Latitude:          36:49'31.18456" N              36:49'31.34970" N
Longitude:        116:25'20.94937" W             116:25'20.98089" W

 ..........................................................................

  STATION (mark)  2

 input data file  1 : c:\tnl\yucca\05170911.dat
  antenna height(m)      1.525

 met values used:  pressure(mb)          1013.0
                   temperature(deg C)      20.0
                   relative humidity(%)    50.0

   x (m)      -2275005.813      lat  (dms)  N    36   49  31.27747
     (m)      -4578476.612      elon (dms)  E   243   34  39.40338
   z (m)       3802577.972      wlon (dms)  W   116   25  20.59662
                                ht (m)          1136.6046

 slope distance (m)          2750.4087      sigma (m)      .007

                                        Forward          Backward
 normal section azimuth (dms)    165 20  8.26       345 20 25.10
 vertical angle (dms)              0-48 36.67         0  0 49.35

  east(m)    north(m)    up(m)          696.214       -2660.549        -38.891

 Delta lat(dms)      0    -1   26.29333
 Delta lon(dms)      0     0   28.08865
 Delta ht(m)    -38.2962

 Vector covariance matrix (m**2) :
                                dx                      dy                      dz

        dx     .308795929519D-04
        dy     .293560912773D-04    .595990741662D-04
        dz    -.191895356246D-04   -.353456567219D-04    .592737404456D-04

  correlations:

              dx      dy      dz    trop bias 1 bias 2 bias 3 bias 4 bias 5 bias 6
 bias 7
     dx   1.000
     dy    .684   1.000
     dz   -.449   -.595   1.000
   trop    .000    .000    .000   1.000
 bias 1    .000    .000    .000    .000   1.000
 bias 2    .000    .000    .000    .000    .000   1.000
```

Data-logging start time = 21:12
Data-logging stop time = 03:38

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
total L1	1543	1358	655	365	844	470	384	514	896
cont. L1	1543	1358	655	365	844	470	384	514	871

SV Selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

3D Position	Best PDOP Position [1.9]	Mean Position [3189]
Latitude:	36:49'31.27586" N	36:49'31.27415" N
Longitude:	116:25'20.13685" W	116:25'20.64650" W
Height [m]:	1156.1	1109.9

2D Position	Best PDOP Position [1.7]	Mean Position [1521]
Latitude:	36:49'31.18456" N	36:49'31.34970" N
Longitude:	116:25'20.94937" W	116:25'20.98089" W

STATION (mark) 2

input data file : c:\tnl\yucca\05170911.dat
antenna height(m) 1.525

met values used: pressure(mb) 1013.0
temperature(deg C) 20.0
relative humidity(%) 50.0

x (m)	-2275005.813	lat (dms)	N	36	49	31.27747
y (m)	-4576476.612	elon (dms)	E	243	34	39.40338
z (m)	3802577.972	wlon (dms)	W	116	25	20.59662
		ht (m)		1136.6046		

slope distance (m) 2750.4087 sigma (m) .007

	Forward	Backward
normal section azimuth (dms)	165 20 8.26	345 20 25.10
vertical angle (dms)	0-48 36.67	0 0 49.35

east(m)	north(m)	up(m)
696.214	-2660.549	-38.891

Delta lat(dms) 0 -1 26.29333
Delta lon(dms) 0 0 28.08865
Delta ht(m) -38.2962

Vector covariance matrix (m**2) :

	dx	dy	dz
dx	.308795929519D-04		
dy	.293560912773D-04	.595990741662D-04	
dz	-.191895356246D-04	-.353456567219D-04	.592737401456D-04

correlations:

	dx	dy	dz	trop	bias 1	bias 2	bias 3	bias 4	bias 5	bias 6	bias 7
dx	1.000										
dy	.684	1.000									
dz	-.449	-.595	1.000								
trop	.000	.000	.000	1.000							
bias 1	.000	.000	.000	.000	1.000						

```
bias 4   .000   .000   .000   .000   .000   .000   .000  1.000
bias 5   .000   .000   .000   .000   .000   .000   .000   .000  1.000
bias 6   .000   .000   .000   .000   .000   .000   .000   .000   .000  1.000
bias 7   .000   .000   .000   .000   .000   .000   .000   .000   .000   .000
 1.000
```

	Solution	Sigma	Sensitivity to 10 meter error in station 1 coordinates		
dx (m)	-72.901	.006	10.000	.000	.000
dy (m)	-1710.814	.008	.000	10.000	.001
dz (m)	-2152.336	.008	.000	-.001	10.000
trop (%)	.000	.000	.000	.000	.000
bias 1 (cycle)	.000	.000	.000	.000	.000
bias 2 (cycle)	.000	.000	.000	.000	.000
bias 3 (cycle)	.000	.000	.000	.000	.000
bias 4 (cycle)	.000	.000	.000	.000	.000
bias 5 (cycle)	.000	.000	.000	.000	.000
bias 6 (cycle)	.000	.000	.000	.000	.000
bias 7 (cycle)	.000	.000	.000	.000	.000

Results of integer bias search:

.10054	3.99105	4.19037
0	0	0
0	0	0
0	-1	1
0	-1	1
0	-1	1
0	0	0

Ratio sum-of-squares(2) to sum-of-squares(1) 39.69

Interval between epochs (sec) 150.0
Epoch increment 5
Number of measurements used in solution 261
Number of measurements rejected 14
RMS (cycles) .027
RDOP(norm to 60 sec)(m/cycle) .027

Elevation mask (deg) 15.0
Edit multiplier 3.5
Modified Hopfield troposphere model used

Best tracking C/A code positions

Station 1

Pdop	2.4					
x (m)	-2274927.344	lat (dms)	N	36	50	57.51763
y (m)	-4576753.644	elon (dms)	E	243	34	11.29762
z (m)	3804718.246	wlon (dms)	W	116	25	48.70238
		ht (m)		1156.9751		

clock offset(s) .11915637D-03
freq offset(s/s) -.31736206D-07

	Code calibration(m)	Carrier calibration(m)
0 - 1	-1.1504	.0016
0 - 2	.6675	.0005
0 - 3	.6401	-.0002
0 - 4	2.1748	-.0006
0 - 5	1.1089	.0014
0 - 6	1.1069	.0003
0 - 7	.9854	-.0005

Station 2

Pdop	2.4					
x (m)	-2274999.935	lat (dms)	N	36	49	31.21937
y (m)	-4578465.170	elon (dms)	E	243	31	39.41033
z (m)	3802566.103	wlon (dms)	W	116	25	20.58967

clock offset(s) .39914307D-03
freq offset(s/s) -.14329631D-06

	Code calibration(m)	Carrier calibration(m)
0 - 1	-.1235	-.0003
0 - 2	-.1348	-.0005
0 - 3	-.4004	.0032
0 - 4	.4911	-.0005
0 - 5	.3066	-.0006
0 - 6	.2651	-.0006
0 - 7	.0093	.0020

TRIMBLE NAVIGATION, LTD
585 NORTH MARY AVENUE
SUNNYVALE, CALIFORNIA 94086
U.S.A.

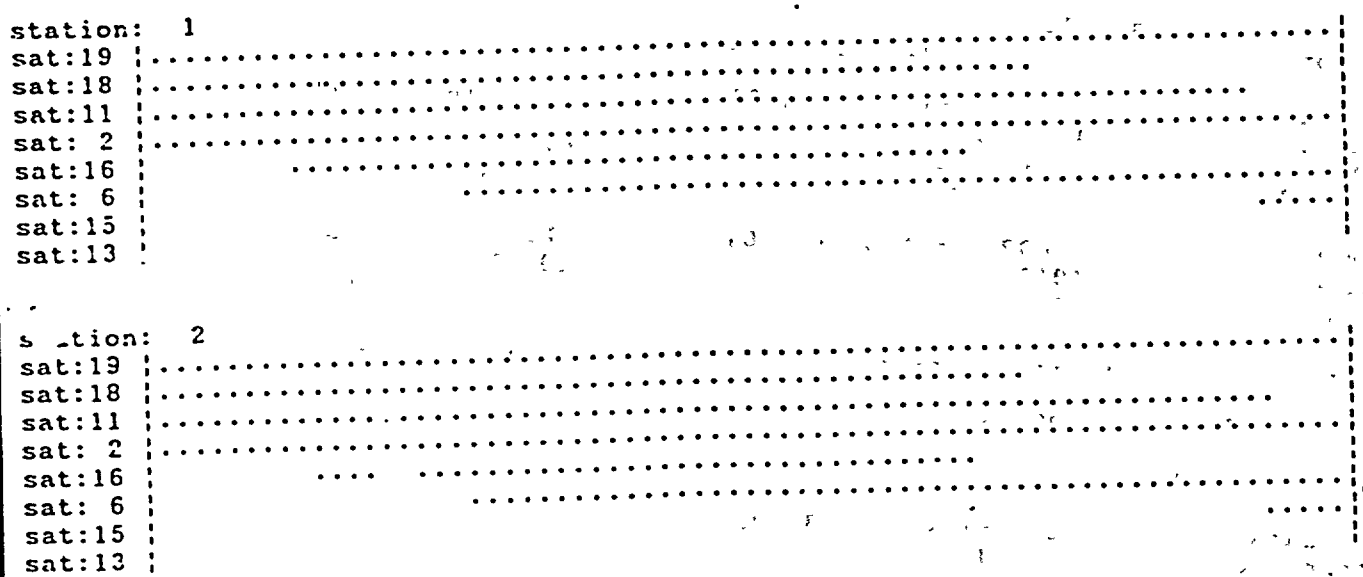
PROGRAM TRIMVEC
GPS RELATIVE POSITIONING SOLUTION
VERSION 90.060

File name: c:\tnl\yucout\09050911.fix
Coordinate system - WGS-84

Type solution: Double difference

Start date/time: 1991/ 4/ 1 21:13: 0. day of year 91 tow 162780.
Stop date/time: 1991/ 4/ 2 0: 7:30. day of year 92 tow 173250.

Data available



Ephemeris file used: c:\tnl\yucca\03090911.eph

SATELLITE	IODE	HEALTH	WEEK NO.	TOW(sec)	URA(m)
19	82	0	586	162600.00	2.0
18	192	0	586	162630.00	2.0
11	94	0	586	162600.00	2.0
2	114	0	586	162570.00	2.8
16	23	0	586	164160.00	2.0
6	59	0	586	165600.00	5.7
15	60	0	586	172680.00	2.8
13	186	0	586	173250.00	2.0

Broadcast satellite clock correction values

prn	af0	af1	af2	toc
19	.1251418144D-04	.1250555215D-11	.0000000000D+00	.1615D+06
18	.6661750376D-05	.4547473509D-12	.0000000000D+00	.1615D+06
11	-.2698996104D-03	-.4320099833D-11	.0000000000D+00	.1692D+06
2	-.3034435213D-04	-.1703302566D-11	.0000000000D+00	.1656D+06
16	.1760665327D-04	.2168049917D-11	.0000000000D+00	.1656D+06
6	-.2305391701D-03	-.1512034942D-10	.0000000000D+00	.1728D+06
[illegible]	.5191[illegible]2D-04	.3410605132D-11	.0000000000D+00	.1728D+06

Message file for station 1

Station ID: 0309 Session #: 091-1 Apr 1, 1991 21:09
Reference Position - LOW ACCURACY:
Lat. = 0:00'00.000" N Long. = 0:00'00.000" W Height = 0.0 [meters]
Ar nna height = 1.4343 [meters] (entered in the field in meters)
Long station name: SOLNW

Receiver serial # = 245
Antenna serial # = 71 (entered in the office)
NP Software = 4.30 SP Software = 4.20 Download Software = 2.05.00

Survey schedule: Start time = 21:12 Stop time = 03:45
Data-logging start time = 21:12
Data-logging stop time = 03:45

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
total L1	1566	1383	655	390	872	465	386	516	886
cont L1	1566	1383	655	390	872	465	386	516	886

SV Selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

3D Position	Best PDOP Position [2.3]	Mean Position [3207]
Latitude:	36:49'36.29052" N	36:49'36.38615" N
Longitude:	116:28'43.09365" W	116:28'43.44712" W
Height [m]:	1199.3	1190.9
2D Position	Best PDOP Position [1.6]	Mean Position [1538]
Latitude:	36:49'36.24485" N	36:49'36.44383" N
Longitude:	116:28'43.45906" W	116:28'43.86407" W

Origin of station 1 coordinates : User input

STATION (mark) 1

input data file 1 : c:\tnl\yucca\03090911.dat
antenna height(m) 1.422

met values used: pressure(mb) 1013.0
temperature(deg C) 20.0
relative humidity(%) 50.0

x (m)	-2279485.446	lat (dms) N	36	49	36.31997
y (m)	-4576193.839	elon (dms) E	243	31	16.56844
z (m)	3802735.905	wlon (dms) W	116	28	43.43156
		ht (m)	1192.4710		

Message file for station 2

Station ID: 0205 Session #: 091-1 Apr 1, 1991 21:08
Reference Position - LOW ACCURACY:
Lat. = 0:00'00.000" N Long. = 0:00'00.000" W Height = 0.0 [meters]
Ar nna height = 1.5950 [meters] (entered in the field in meters)
Lo.s station name: TR14SE

Receiver serial # = 247
Antenna serial # = 72 (entered in the office)
NP Software = 4.30 SP Software = 4.20 Download Software = 2.05.00

Survey schedule: Start time = 21:12 Stop time = 03:45

Data-logging stop time = 02:...

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
total L1	1377	1193	657	199	678	470	354	513	896
cont L1	1377	1193	657	199	678	470	320	513	870

SV Selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

3D Position	Best PDOP Position [2.3]	Mean Position [2686]
Latitude:	36:50'57.54391" N	36:50'57.57286" N
Longitude:	116:25'48.66882" W	116:25'48.72420" W
Height [m]:	1154.1	1149.4

2D Position	Best PDOP Position [1.7]	Mean Position [1568]
Latitude:	36:50'57.47261" N	36:50'57.71237" N
Longitude:	116:25'49.08215" W	116:25'48.90897" W

STATION (mark) 2

input data file 1 : c:\tnl\yucca\02050911.dat
antenna height(m) 1.584

met values used: pressure(mb) 1013.0
temperature(deg C) 20.0
relative humidity(%) 50.0

x (m)	-2274924.865	lat (dms)	N	36	50	57.50026
y (m)	-4576747.850	elon (dms)	E	243	34	11.28312
z (m)	3804712.861	wlon (dms)	W	116	25	48.71688
		ht (m)		1148.7105		

slope distance (m) 5001.4177 sigma (m) .011

	Forward	Backward
normal section azimuth (dms)	59 57 16.47	239 59 1.21
vertical angle (dms)	0-31 25.61	0 0 30.09

east(m)	north(m)	up(m)	4329.190	2504.038	-43.721

Delta lat(dms) 0 1 21.18029
Delta lon(dms) 0 2 54.71468
Delta ht(m) -43.7605

Vector covariance matrix (m**2) :

	dx	dy	dz
dx	.144156774855D-03		
dy	.140441551225D-03	.264556526718D-03	
dz	-.836695693430D-04	-.147329093297D-03	.229412569738D-03

correlations:

	dx	dy	dz	trop	bias 1	bias 2	bias 3	bias 4	bias 5	bias 6	bias 7	bias 8
dx	1.000											
dy	.719	1.000										
dz	-.460	-.598	1.000									
trop	.000	.000	.000	1.000								
bias 1	.000	.000	.000	.000	1.000							
bias 2	.000	.000	.000	.000	.000	1.000						
bias 3	.000	.000	.000	.000	.000	.000	1.000					
bias 4	.000	.000	.000	.000	.000	.000	.000	1.000				
bias 5	.000	.000	.000	.000	.000	.000	.000	.000	1.000			

```
bias 6    .000    .000    .000    .000    .000    .000    .000    .000    .000    1.000
bias 7    .000    .000    .000    .000    .000    .000    .000    .000    .000    .000
 1.000
bias 8    .000    .000    .000    .000    .000    .000    .000    .000    .000    .000
  .000   1.000
```

	Solution	Sigma	Sensitivity to 10 meter error in station 1 coordinates		
dx (m)	4560.581	.012	10.000	.001	-.001
dy (m)	-554.011	.016	-.001	10.001	.000
dz (m)	1976.956	.015	.001	.000	10.000
trop (%)	.000	.000	.000	.000	.000
bias 1 (cycle)	.000	.000	.000	.000	.000
bias 2 (cycle)	.000	.000	.000	.000	.000
bias 3 (cycle)	.000	.000	.000	.000	.000
bias 4 (cycle)	.000	.000	.000	.000	.000
bias 5 (cycle)	.000	.000	.000	.000	.000
bias 6 (cycle)	.000	.000	.000	.000	.000
bias 7 (cycle)	.000	.000	.000	.000	.000
bias 8 (cycle)	.000	.000	.000	.000	.000

```
 Results of integer bias search:
             .26528              4.04199              4.23615

                0                    0                    0
                0                    0                    0
                0                   -1                    1
                0                   -1                    1
                0                   -1                    1
                0                    0                    0
                0                    0                    0
Ratio sum-of-squares(2) to sum-of-squares(1)       15.24

 Interval between epochs (sec)  150.0
 Epoch increment     5
 Number of measurements used in solution    264
 Number of measurements rejected             11
 RMS (cycles)          .049
 RDOP(norm to 60 sec)(m/cycle)         .027

 Elevation mask (deg)      15.0
 Edit multiplier     3.5
 Modified Hopfield troposphere model used

Best tracking C/A code positions
Station  1
Pdop          2.4
  x (m)     -2279487.214       lat  (dms)  N    36    49  36.32616
  y (m)     -4576199.227       elon (dms)  E   243    31  16.60153
  z (m)      3802740.345       wlon (dms)  W   116    28  43.39847
                               ht (m)          1199.6240
clock offset(s)          .42267853D-03
freq  offset(s/s)       -.35668336D-06

 Code calibration(m)      Carrier calibration(m)
0 -  1          -.3271                  -.0009
0 -  2          -.5352                  -.0009
0 -  3          -.3359                  -.0012
0 -  4           .1577                  -.0005
0 -  5          -.1260                  -.0013
0 -  6          -.1694                  -.0012
0 -  7           .0229                  -.0015
Station  2
Pdop          2.4
  x (m)     -2274927.344       lat  (dms)  N    36    50  57.51763
```

z (m) = 3804718.246 wlon (dms) W 116 25 48.70238
ht (m) 1156.9751

clock offset(s) .11915637D-03
freq offset(s/s) -.31736206D-07

Code calibration(m)		Carrier calibration(m)
0 - 1	-1.1504	.0016
0 - 2	.6675	.0005
0 - 3	.6401	-.0002
0 - 4	2.1748	-.0006
0 - 5	1.1089	.0014
0 - 6	1.1069	.0003
0 - 7	.9854	-.0005

Trimble Loop Closure Utility

Start Traverse at Station: 9999
Starting Coords : 36x48'49.75856"N 116x33'54.29733"W 1098.506

Baseline 1
File Name: 99130881.FIX
From Station: 9999 To Station: 0413
Distance Travelled (m): 10691.193
Current Coords : 36x51'08.40974"N 116x27'19.00189"W 1310.500

Baseline 2
File Name: 05130881.FIX
From Station: 0413 To Station: 0205
Distance Travelled (m): 12959.216
Current Coords : 36x50'57.49973"N 116x25'48.71797"W 1148.694

Baseline 3
File Name: 05170911.FIX
From Station: 0205 To Station: 0517
Distance Travelled (m): 15709.625
Current Coords : 36x49'31.20604"N 116x25'20.62919"W 1110.399

Baseline 4
File Name: 09170911.FIX
From Station: 0517 To Station: 0309
Distance Travelled (m): 20739.483
Current Coords : 36x49'36.31954"N 116x28'43.43266"W 1192.457

Baseline 5
File Name: 99090891.FIX
From Station: 0309 To Station: 9999
Distance Travelled (m): 28578.362
Current Coords : 36x48'49.75803"N 116x33'54.29845"W 1098.486

End Traverse at Station: 9999
Distance Travelled (m): 28578.362 Precision (ppm): 1.32
dx: -0.022 dy: 0.018 dz: -0.025 dh: -0.020
Ending Coords : 36x48'49.75803"N 116x33'54.29845"W 1098.486
Reference Coords: 36x48'49.75856"N 116x33'54.29733"W 1098.506

Trimble Loop Closure Utility

Start Traverse at Station: 0309
Starting Coords : 36x49'36.31997"N 116x28'43.43156"W 1192.471

Baseline 1 Fran Ridge NW
File Name: 09170911.FIX
From Station: 0309 To Station: 0517
Distance Travelled (m): 5029.857
Current Coords : 36x49'31.20647"N 116x25'20.52809"W 1110.413

Baseline 2 Stage
File Name: 21170911.FIX
From Station: 0517 To Station: 0621
Distance Travelled (m): 16271.083
Current Coords : 36x44'03.72308"N 116x28'39.70639"W 891.532

Baseline 3 So/NW
File Name: 09210911.FIX
From Station: 0621 To Station: 0309
Distance Travelled (m): 26530.225
Current Coords : 36x49'36.32019"N 116x28'43.43140"W 1192.467

End Traverse at Station: 0309
Distance Travelled (m): 26530.225 Precision (ppm): 0.34
dx: 0.007 dy: 0.005 dz: 0.003 dh: -0.004
Ending Coords : 36x49'36.32019"N 116x28'43.43140"W 1192.467
Reference Coords: 36x49'36.31997"N 116x28'43.43156"W 1192.471

Trimble Loop Closure Utility

Start Traverse at Station: 9999
Starting Coords : 36x48'49.75856"N 116x33'54.29733"W 1093.506

Baseline 1
File Name: 99130881.FIX Yucca Ridge NW
From Station: 9999 To Station: 0413
Distance Travelled (m): 10691.193
Current Coords : 36x51'08.40974"N 116x27'19.00189"W 1310.500

Baseline 2
File Name: 05130881.FIX Trench 14 SE
From Station: 0413 To Station: 0205
Distance Travelled (m): 12959.216
Current Coords : 36x50'57.49973"N 116x25'48.71797"W 1148.694

Baseline 3
File Name: 05170911.FIX
From Station: 0205 To Station: 0517
Distance Travelled (m): 15709.625
Current Coords : 36x49'31.20604"N 116x25'20.62919"W 1110.399

Baseline 4
File Name: 21170911.FIX
From Station: 0517 To Station: 0621
Distance Travelled (m): 26950.851
Current Coords : 36x44'03.72264"N 116x28'39.70749"W 891.518

Baseline 5
File Name: 01210891.FIX
From Station: 0621 To Station: 0101
Distance Travelled (m): 34794.140
Current Coords : 36x48'10.27516"N 116x29'57.34627"W 1058.257

Baseline 6
File Name: 99010891.FIX
From Station: 0101 To Station: 9999
Distance Travelled (m): 40793.497
Current Coords : 36x48'49.75559"N 116x33'54.29928"W 1093.473

End Traverse at Station: 9999
Distance Travelled (m): 40793.497 Precision (ppm): 2.66
dx: -0.056 dy: -0.004 dz: -0.093 dh: -0.033
Ending Coords : 36x48'49.75559"N 116x33'54.29928"W 1093.473
Reference Coords: 36x48'49.75856"N 116x33'54.29733"W 1093.506

Trimble Loop Closure Utility

Start Traverse at Station: 9999
Starting Coords : 36x48'49.75856"N 116x33'54.29733"W 1098.506

Baseline 1 Trench / SW
File Name: 99010891.FIX To Station: 0101
From Station: 9999
Distance Travelled (m): 5999.357
Current Coords : 36x48'10.27813"N 116x29'57.34432"W 1058.290

Baseline 2 Stage NW
File Name: 01210891.FIX To Station: 0621
From Station: 0101
Distance Travelled (m): 13842.646
Current Coords : 36x44'03.72561"N 116x28'39.70555"W 891.551

Baseline 3 Sol NW
File Name: 09210891.FIX To Station: 0309
From Station: 0621
Distance Travelled (m): 24101.704
Current Coords : 36x49'36.31997"N 116x28'43.43156"W 1192.471

Baseline 4
File Name: 99090891.FIX To Station. 9999
From Station: 0309
Distance Travelled (m): 31940.583
Current Coords : 36x48'49.75847"N 116x33'54.29735"W 1098.499

End Traverse at Station: 9999
Distance Travelled (m): 31940.583 Precision (ppm): 0.21
dx 0.001 dy: 0.003 dz: -0.006 dh: -0.006
Ending Coords : 36x48'49.75847"N 116x33'54.29735"W 1098.499
Reference Coords: 36x48'49.75856"N 116x33'54.29733"W 1098.506

ADJUSTMENT STATISTICS SUMMARY
NETWORK = YUCCA
TIME = Tue Apr 16 11:44:42 1991

ADJUSTMENT SUMMARY

Reference Factor = 1.01
Chi-Square Test (' = 95%) = PASS
Degrees of Freedom = 33

Reference Factor for GPS Solution #	1 =	0.87	r =	2.63
Reference Factor for GPS Solution #	2 =	1.04	r =	2.37
Reference Factor for GPS Solution #	3 =	1.06	r =	0.14
Reference Factor for GPS Solution #	4 =	0.17	r =	1.86
Reference Factor for GPS Solution #	5 =	0.34	r =	2.37
Reference Factor for GPS Solution #	6 =	1.06	r =	2.36
Reference Factor for GPS Solution #	7 =	0.53	r =	1.70
Reference Factor for GPS Solution #	8 =	1.68	r =	1.94
Reference Factor for GPS Solution #	9 =	1.09	r =	2.41
Reference Factor for GPS Solution #	10 =	1.15	r =	2.53
Reference Factor for GPS Solution #	11 =	1.96	r =	2.40
Reference Factor for GPS Solution #	12 =	1.29	r =	2.35
Reference Factor for GPS Solution #	13 =	0.33	r =	1.72
Reference Factor for GPS Solution #	14 =	0.47	r =	0.42
Reference Factor for GPS Solution #	15 =	0.49	r =	1.73
Reference Factor for GPS Solution #	16 =	0.34	r =	2.37
Reference Factor for GPS Solution #	17 =	0.29	r =	1.70
				33.00

WEIGHTING STRATEGIES:

No scalar weighting strategy was used

No summation weighting strategy was used

STATION ERROR STRATEGY

H.I. error = 0.0000
Tribrach error = 0.0000

COORDINATE ADJUSTMENT SUMMARY
NETWORK = YUCCA
TIME = Tue Apr 16 11:44:42 1991

Datum = NAD-83
Coordinate System = Geographic
Zone = Global

Network Adjustment Constraints:
1 fixed coordinates in y
1 fixed coordinates in x
1 fixed coordinates in h

POINT	NAME	OLD COORDS	ADJUST	NEW COORDS	SIGMA
1	LAT=	36x 48' 10.289655"	-0.011269"	36x 48' 10.278386"	0.008009m
0101	LON=	116x 29' 57.560424"	+0.214725"	116x 29' 57.345699"	0.005743m
	HEIGHT=	1089.6280m	-31.5035m	1058.1245m	0.008748m
2	LAT=	36x 50' 57.510556"	-0.010467"	36x 50' 57.500089"	0.009317m
0205	LON=	116x 25' 48.935215"	+0.215594"	116x 25' 48.719621"	0.006670m
	HEIGHT=	1180.0259m	-31.4873m	1148.5386m	0.014333m
3	LAT=	36x 49' 36.328310"	-0.008306"	36x 49' 36.320004"	0.007735m
0309	LON=	116x 28' 43.649863"	+0.216544"	116x 28' 43.433319"	0.005553m
	HEIGHT=	1192.3060m	+0.0000m	1192.3060m	0.000000m
4	LAT=	36x 51' 08.420466"	-0.010511"	36x 51' 08.409955"	0.010304m
0417	LON=	116x 27' 19.218695"	+0.215546"	116x 27' 19.003149"	0.007380m
	HEIGHT=	1341.8333m	-31.4880m	1310.3453m	0.017536m
5	LAT=	36x 49' 31.214957"	-0.008089"	36x 49' 31.206868"	0.009661m
0517	LON=	116x 25' 20.847393"	+0.216517"	116x 25' 20.630877"	0.006913m
	HEIGHT=	1141.7125m	-31.4699m	1110.2426m	0.014711m
6	LAT=	36x 44' 03.735345"	-0.009189"	36x 44' 03.726156"	0.009828m
0621	LON=	116x 28' 39.923593"	+0.216139"	116x 28' 39.707454"	0.007068m
	HEIGHT=	922.8504m	-31.4730m	891.3774m	0.015777m
7	LAT=	36x 48' 49.758570"	+0.000000"	36x 48' 49.758570"	0.000000m
9999	LON=	116x 33' 54.297310"	+0.000000"	116x 33' 54.297310"	0.000000m
	HEIGHT=	1129.8499m	-31.5034m	1098.3465m	0.015917m

OBSERVATION ADJUSTMENT SUMMARY
NETWORK = YUCCA
TIME = Tue Apr 16 11:45:09 1991

OBSERVATION ADJUSTMENT (Tau = 3.10)

OBS#	TYPE	OBSERVED	S.E.	CORR	ADJUSTED	S.E.	TAU
1	gpsaz	71x50'18.1914"	0.4068	-0.2543	71x50'17.9371"	0.1430	0.22
2	gpsht	+50.1760	0.0547	+0.0161	+50.1921	0.0192	0.10
3	gpsds	12660.4945	0.0208	+0.0262	12660.5206	0.0074	0.43
4	gpsaz	66x23'35.4079"	0.4016	-0.2185	66x23'35.1894"	0.1828	0.20
5	gpsht	+211.9860	0.0463	+0.0127	+211.9987	0.0211	0.10
6	gpsds	10687.0214	0.0181	+0.0268	10687.0482	0.0084	0.54
7	gpsaz	278x33'31.2859"	0.5118	-0.1373	278x33'31.1486"	0.4992	0.39
8	gpsht	+161.8074	0.0112	-0.0007	+161.8067	0.0109	0.10
9	gpsds	2261.7977	0.0039	+0.0011	2261.7988	0.0038	0.40
10	gpsaz	101x41'12.3840"	0.4529	+0.0724	101x41'12.4564"	0.2787	0.07
11	gpsht	-40.2218	0.0265	-0.0001	-40.2220	0.0164	0.00
12	gpsds	5998.1755	0.0091	-0.0014	5998.1742	0.0056	0.06
13	gpsaz	79x25'15.3236"	0.4304	-0.0376	79x25'15.2861"	0.1978	0.03
14	gpsht	+93.9640	0.0251	-0.0045	+93.9595	0.0159	0.05
15	gpsds	7836.8715	0.0128	-0.0052	7836.8663	0.0058	0.15
16	gpsaz	138x28'18.5605"	0.3421	+0.5081	138x28'19.0686"	0.1579	0.54
17	gpsht	-206.9627	0.0432	-0.0064	-206.9692	0.0201	0.05
18	gpsds	11773.0070	0.0176	+0.0177	11773.0247	0.0081	0.36
19	gpsaz	34x37'34.8102"	0.3105	-0.0906	34x37'34.7226"	0.2054	0.13
20	gpsht	+134.1803	0.0133	+0.0011	+134.1815	0.0087	0.04
21	gpsds	3223.4836	0.0065	+0.0043	3223.4880	0.0043	0.29
22	gpsaz	165x46'37.7785"	0.2745	+0.4034	165x46'38.1819"	0.1640	0.59
23	gpsht	-166.7415	0.0279	-0.0057	-166.7472	0.0164	0.08
24	gpsds	7840.2765	0.0129	+0.0269	7840.3034	0.0077	0.84
25	gpsaz	179x29'00.0308"	0.2815	+0.2069	179x29'00.2377"	0.1118	0.30
26	gpsht	-300.9258	0.0053	-0.0029	-300.9286	0.0158	0.03
27	gpsds	10252.9210	0.0174	+0.0271	10252.9481	0.0077	0.56
28	gpsaz	18x22'13.8144"	0.2479	-0.0039	18x22'13.8105"	0.0986	0.01
29	gpsht	+257.1756	0.0475	-0.0143	+257.1612	0.0188	0.11
30	gpsds	13441.0817	0.0236	-0.0416	13441.0401	0.0093	0.62
31	gpsaz	179x29'00.5587"	0.2503	-0.3210	179x29'00.2377"	0.1118	0.46
32	gpsht	-300.9356	0.0052	+0.0070	-300.9286	0.0158	0.07
33	gpsds	10252.9983	0.0174	-0.0501	10252.9481	0.0077	1.04
34	gpsaz	26x02'31.4484"	0.2598	+0.0914	26x02'31.5398"	0.1219	0.13
35	gpsht	+218.8778	0.0407	-0.0125	+218.8652	0.0190	0.11
36	gpsds	11237.2737	0.0201	-0.0386	11237.2352	0.0093	0.70
37	gpsaz	59x57'16.4086"	0.2386	-0.1480	59x57'16.2606"	0.2550	0.16
38	gpsht	-43.7653	0.0220	-0.0021	-43.7674	0.0143	0.04
39	gpsds	5003.2840	0.0091	+0.0004	5003.2844	0.0060	0.02
40	gpsaz	165x20'08.0821"	0.2761	-0.0840	165x20'07.9781"	0.2773	0.25
41	gpsht	-38.2956	0.0106	+0.0006	-38.2950	0.0099	0.05
42	gpsds	2749.6405	0.0051	-0.0007	2749.6397	0.0047	0.12
43	gpsaz	91x46'46.2514"	0.4541	-0.2736	91x46'45.9778"	0.2955	0.26
44	gpsht	-82.0636	0.0227	+0.0002	-82.0634	0.0147	0.00
45	gpsds	5028.2561	0.0079	-0.0007	5028.2554	0.0051	0.04
46	gpsaz	259x26'21.6255"	0.4705	-0.0364	259x26'21.5891"	0.1976	0.03
47	gpsht	-93.9629	0.0251	+0.0044	-93.9585	0.0159	0.05
48	gpsds	7836.8715	0.0128	-0.0052	7836.8663	0.0058	0.15

51	gpsds	3223.4857	0.0065	+0.0023	3223.4880	0.0043	0.15

SUMMARY OF COVARIANCES
NETWORK = YUCCA
TIME = Tue Apr 16 11:45:21 1991

FROM	TO	AZIMUTH	S.E.	DISTANCE	S.E.	DELTA H	S.E.	HOR PREC
0101	0205	50x03'44"	0.17	8033.34	0.0072	+90.41	0.0162	1: 1109909
0101	0309	34x37'35"	0.21	3223.49	0.0043	+134.18	0.0087	1: 757425
0101	0413	35x32'10"	0.22	6749.04	0.0091	+252.22	0.0191	1: 743164
0101	0517	69x59'19"	0.21	7298.15	0.0065	+52.12	0.0166	1: 1118387
0101	0621	165x46'38"	0.16	7840.30	0.0077	-166.75	0.0164	1: 1019374
0101	9999	281x43'34"	0.28	5998.17	0.0056	+40.22	0.0164	1: 1069704
0205	0309	239x59'01"	0.25	5000.28	0.0060	+43.77	0.0143	1: 834185
0205	0413	278x33'31"	0.50	2261.80	0.0038	+161.81	0.0109	1: 590646
0205	0517	165x20'08"	0.28	2749.64	0.0047	-38.30	0.0099	1: 585880
0205	0621	198x23'56"	0.10	13441.04	0.0093	-257.16	0.0188	1: 1442757
0205	9999	251x55'09"	0.14	12660.52	0.0074	-50.19	0.0192	1: 1718983
0309	0413	36x22'48"	0.38	3526.33	0.0083	+118.04	0.0175	1: 424389
0309	0517	91x46'46"	0.30	5028.26	0.0051	-82.06	0.0147	1: 989528
0309	0621	179x29'00"	0.11	10252.95	0.0077	-300.93	0.0158	1: 1327649
0309	9999	259x28'22"	0.20	7836.87	0.0058	-93.96	0.0159	1: 1340040
0413	0517	135x36'11"	0.33	4192.95	0.0059	-200.10	0.0146	1: 714270
0413	0621	188x41'47"	0.11	13243.34	0.0106	-416.97	0.0213	1: 1249177
0413	9999	246x27'32"	0.18	10687.05	0.0084	-210.00	0.0211	1: 1268565
0517	0621	206x04'31"	0.12	11237.24	0.0093	-216.87	0.0190	1: 1206822
0517	9999	264x18'41"	0.15	12794.54	0.0071	-11.90	0.0198	1: 1804237
0621	9999	318x31'27"	0.16	11773.02	0.0081	+206.97	0.0201	1: 1456343

Station ID: 9999 Session #: 088-1 Mar 29, 1991 21:20
Reference Position - LOW ACCURACY:
Lat. = 0:00'00.000" N Long. = 0:00'00.000" W, Height = 0.0 [meters]
Antenna height = 1.4870 [meters] (entered in the field in meters)
Long station name: CRATER

Receiver serial # = 248
Antenna serial # = 73 (entered in the office)
NP Software = 4.30 SP Software = 4.20 Download Software = 2.05.00

Survey schedule: Start time = 21:24 Stop time = 03:57
Data-logging start time = 21:25
Data-logging stop time = 03:57

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
total L1	1568	1384	655	391	870	466	388	512	902
cont L1	1568	1384	655	391	870	466	388	512	902

SV Selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

3D Position	Best PDOP Position [2.3]	Mean Position [3274]
Latitude:	36:48'49.81197" N	36:48'49.73770" N
Longitude:	116:33'54.21808" W	116:33'54.14805" W
Height [m]:	1097.2	1103.1

2D Position	Best PDOP Position [1.6]	Mean Position [1573]
Latitude:	36:48'49.66177" N	36:48'50.20000" N
Longitude:	116:33'54.30314" W	116:33'53.60859" W

MESSAGE FILES
FOR ALL STATION
OCCUPATIONS

Station ID: 0205 Session #: 088-1 Mar 29, 1991 21:21
Reference Position - LOW ACCURACY:
Lat. = 0:00'00.000" N Long. = 0:00'00.000" W Height = 0.0 [meters]
Antenna height = 1.5490 [meters] (entered in the field in meters)
Long station name: TR14SE

Receiver serial # = 245
Antenna serial # = 71 (entered in the office)
MP Software = 4.30 SP Software = 4.20 Download Software = 2.05.00

Survey schedule: Start time = 21:24 Stop time = 03:57
Data-logging start time = 21:25
Data-logging stop time = 03:57

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
total L1	1566	1380	652	388	869	472	384	510	880
cont L1	1566	1380	652	388	869	471	384	510	880

SV Selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

3D Position	Best PDOP Position [2.3]	Mean Position [3193]
Latitude:	36:50'57.60979" N	36:50'57.48553" N
Longitude:	116:25'48.55788" W	116:25'48.57408" W
Height [m]:	1156.5	1153.2

2D Position	Best PDOP Position [1.6]	Mean Position [1544]
Latitude:	36:50'57.42743" N	36:50'57.60956" N
Longitude:	116:25'48.72832" W	116:25'48.43209" W

Station ID: 0413 Session #: 088-1 Mar 29, 1991 21:20
Reference Position - LOW ACCURACY:
Lat. = 0:00'00.000" N Long. = 0:00'00.000" W Height = 0.0 [meters]
Antenna height = 1.5920 [meters] (entered in the field in meters)
Long station name: YUCNW

Receiver serial # = 244
Antenna serial # = 70 (entered in the office)
RP Software = 4.30 SP Software = 4.20 Download Software = 2.05.00

Survey schedule: Start time = 21:24 Stop time = 03:57
Data-logging start time = 21:24
Data-logging stop time = 03:57

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
total L1	1565	1380	657	388	869	470	385	515	905
cont L1	1565	1370	657	388	869	470	385	515	905

SV Selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

3D Position	Best PDOP Position [1.9]	Mean Position [3255]
Latitude:	36:51'08.65460" N	36:51'08.39414" N
Longitude:	116:27'18.70442" W	116:27'18.85172" W
Height [m]:	1354.5	1315.5

2D Position	Best PDOP Position [1.6]	Mean Position [1509]
Latitude:	36:51'08.30867" N	36:51'08.49379" N
Longitude:	116:27'18.98086" W	116:27'18.74163" W

Station ID: 9999 Session #: 089-1 Mar 30, 1991 21:16
Reference Position - LOW ACCURACY:
Lat. = 0:00'00.000" N Long. = 0:00'00.000" W Height = 0.0 [meters]
Antenna height = 1.4860 [meters] (entered in the field in meters)
Long station name: CRATER

Receiver serial # = 248
Antenna serial # = 73 (entered in the office)
NP Software = 4.30 SP Software = 4.20 Download Software = 2.05.00

Survey schedule: Start time = 21:20 Stop time = 03:53
Data-logging start time = 21:20
Data-logging stop time = 03:53

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
total L1	1564	1384	655	389	871	468	388	515	905
cont L1	931	932	637	389	871	468	388	515	637

SV Selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

3D Position	Best PDOP Position [2.3]	Mean Position [3271]
Latitude:	36:48'49.71733" N	36:48'49.70137" N
Longitude:	116:33'54.54612" W	116:33'54.23487" W
Height [m]:	1102.2	1110.1

2D Position	Best PDOP Position [1.6]	Mean Position [1481]
Latitude:	36:48'49.02651" N	36:48'49.97678" N
Longitude:	116:33'53.32779" W	116:33'54.19719" W

Station ID: 0101 Session #: 089-1 Mar 30, 1991 21:17
Reference Position - LOW ACCURACY:
Lat. = 0:00'00.000" N Long. = 0:00'00.000" W Height = 0.0 [meters]
Antenna height = 1.4535 [meters] (entered in the field in meters)
Long station name: TR1SW

Receiver serial # = 247
Antenna serial # = 72 (entered in the office)
NP Software = 4.30 SP Software = 4.20 Download Software = 2.05.00

Survey schedule: Start time = 21:20 Stop time = 03:53
Data-logging start time = 21:20
Data-logging stop time = 03:53

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
total L1	1567	1380	656	392	870	469	386	513	873
cont L1	932	932	637	392	870	469	386	513	637

SV Selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

3D Position	Best PDOP Position [2.3]	Mean Position [3178]
Latitude:	36:48'10.28554" N	36:48'10.20856" N
Longitude:	116:29'57.40073" W	116:29'57.30117" W
Height [m]:	1067.0	1068.5

2D Position	Best PDOP Position [1.6]	Mean Position [1549]
Lacitude:	36:48'09.55955" N	36:48'10.65731" N
Longitude:	116:29'56.45231" W	116:29'57.00652" W

Station ID: 0309 Session #: 089-1 Mar 30, 1991 21:16
Reference Position - LOW ACCURACY:
Lat. = 0:00'00.000" N Long. = 0:00'00.000" W Height = 0.0 [meters]
Antenna height = 1.4340 [meters] (entered in the field in meters)
Long station name: SOLNW

Receiver serial # = 245
Antenna serial # = 71 (entered in the office)
MP Software = 4.30 SP Software = 4.20 Download Software = 2.05.00

Survey schedule: Start time = 21:20 Stop time = 03:53
Data-logging start time = 21:20
Data-logging stop time = 03:53

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
Total L1	1567	1381	654	389	870	471	384	515	886
Cont L1	932	932	637	389	870	471	384	515	637

SV Selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

3D Position	Best PDOP Position [2.3]	Mean Position [3217]
Latitude:	36:49'36.34476" N	36:49'36.25079" N
Longitude:	116:28'43.47748" W	116:28'43.36994" W
Height [m]:	1200.6	1203.0

2D Position	Best PDOP Position [1.6]	Mean Position [1555]
Latitude:	36:49'35.61357" N	36:49'36.29984" N
Longitude:	116:28'42.49415" W	116:28'43.60590" W

Station ID: 0621 Session #: 089-1 Mar 30, 1991 21:16
Reference Position - LOW ACCURACY:
Lat. = 0:00'00.000" N Long. = 0:00'00.000" W Height = 0.0 [meters]
Antenna height = 1.4450 [meters] (entered in the field in meters)
Long station name: STAGENW

Receiver serial # = 244
Antenna serial # = 70 (entered in the office)
MP Software = 4.30 SP Software = 4.20 Download Software = 2.05.00

Survey schedule: Start time = 21:20 Stop time = 03:53
Data-logging start time = 21:20
Data-logging stop time = 03:53

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
Total L1	1567	1380	654	387	869	470	382	514	898
Cont L1	932	932	637	387	869	470	382	514	637

SV Selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

3D Position	Best PDOP Position [2.3]	Mean Position [3247]
Latitude:	36:44'03.73726" N	36:44'03.66418" N
Longitude:	116:28'39.75419" W	116:28'39.64998" W
Height [m]:	900.6	902.9

2D Position	Best PDOP Position [1.6]	Mean Position [1525]
Latitude:	36:44'02.97397" N	36:44'03.93116" N
Longitude:	116:28'38.74191" W	116:28'39.61427" W

Station ID: 0205 Session #: 091-1 Apr 1, 1991 21:08
Reference Position - LOW ACCURACY:
Lat. = 0:00'00.000" N Long. = 0:00'00.000" W Height = 0.0 [meters]
Antenna height = 1.5950 [meters] (entered in the field in meters)
Long station name: TR14SE

Receiver serial # = 247
Antenna serial # = 72 (entered in the office)
NP Software = 4.30 SP Software = 4.20 Download Software = 2.05.00

Survey schedule: Start time = 21:12 Stop time = 03:45
Data-logging start time = 21:12
Data-logging stop time = 02:57

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
total L1	1377	1193	657	199	678	470	354	513	896
cont L1	1377	1193	657	199	678	470	320	513	870

SV Selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

3D Position	Best PDOP Position [2.3]	Mean Position [2686]
Latitude:	36:50'57.54391" N	36:50'57.57286" N
Longitude:	116:25'48.66882" W	116:25'48.72420" W
Height [m]:	1154.1	1149.4

2D Position	Best PDOP Position [1.7]	Mean Position [1568]
Latitude:	36:50'57.47261" N	36:50'57.71237" N
Longitude:	116:25'49.09215" W	116:25'48.90897" W

Station ID: 0621 Session #: 091-1 Apr 1, 1991 21:08
Reference Position - LOW ACCURACY:
Lat. = 0:00'00.000" N Long. = 0:00'00.000" W Height = 0.0 [meters]
Antenna height = 1.4450 [meters] (entered in the field in meters)
Long station name: STAGENW

Receiver serial # = 244
Antenna serial # = 70 (entered in the office)
RP Software = 4.30 SP Software = 4.20 Download Software = 2.05.00

Survey schedule: Start time = 21:12 Stop time = 03:45
Data-logging start time = 21:13
Data-logging stop time = 03:45

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
total L1	1565	1382	651	389	872	468	385	510	897
cont L1	1565	1344	651	389	872	468	385	510	884

SV Selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

3D Position	Best PDOP Position [2.3]	Mean Position [3258]
Latitude:	36:44'03.76797" N	36:44'03.79406" N
Longitude:	116:28'39.65533" W	116:28'39.74403" W
Height [m]:	896.5	889.2

2D Position	Best PDOP Position [1.6]	Mean Position [1530]
Latitude:	36:44'03.66839" N	36:44'03.97753" N
Longitude:	116:28'39.77039" W	116:28'39.87838" W

Station ID: 0517 Session #: 091-1 Apr 1, 1991 21:08
Reference Position - LOW ACCURACY:
Lat. = 0:00'00.000" N Long. = 0:00'00.000" W Height = 0.0 [meters]
Antenna height = 1.5370 [meters] (entered in the field in meters)
Long station name: FRANNW

Receiver serial # = 248
Antenna serial # = 73 (entered in the office)
NP Software = 4.30 SP Software = 4.20 Download Software = 2.05.00

Survey schedule: Start time = 21:12 Stop time = 03:45
Data-logging start time = 21:12
Data-logging stop time = 03:38

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
Total L1	1543	1358	655	365	844	470	384	514	896
Cont L1	1543	1358	655	365	844	470	384	514	871

SV Selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

3D Position	Best PDOP Position [1.9]	Mean Position [3189]
Latitude:	36:49'31.27586" N	36:49'31.27415" N
Longitude:	116:25'20.13685" W	116:25'20.64650" W
Height [m]:	1156.1	1109.9

2D Position	Best PDOP Position [1.7]	Mean Position [1521]
Latitude:	36:49'31.18456" N	36:49'31.34970" N
Longitude:	116:25'20.94937" W	116:25'20.98089" W

Station ID: 0309 Session #: 091-1 Apr 1, 1991 21:09
Reference Position - LOW ACCURACY:
Lat. = 0:00'00.000" N Long. = 0:00'00.000" W Height = 0.0 [meters]
Antenna height = 1.4343 [meters] (entered in the field in meters)
Long station name: SOLNW

Receiver serial # = 245
Antenna serial # = 71 (entered in the office)
RP Software = 4.30 SP Software = 4.20 Download Software = 2.05.00

Survey schedule: Start time = 21:12 Stop time = 03:45
Data-logging start time = 21:12
Data-logging stop time = 03:45

Tracking	SV 2	SV 6	SV 11	SV 12	SV 13	SV 15	SV 16	SV 18	SV 19
Total L1	1566	1383	655	390	872	465	386	516	886
Cont L1	1566	1383	655	390	872	465	386	516	886

SV Selection mode = AUTOMATIC
Elevation mask = 15 [degrees] Minimum # of SVs = 3

3D Position	Best PDOP Position [2.3]	Mean Position [3207]
Latitude:	36:49'36.29052" N	36:49'36.38615" N
Longitude:	116:28'43.09365" W	116:28'43.44712" W
Height [m]:	1199.3	1190.9

2D Position	Best PDOP Position [1.6]	Mean Position [1538]
Latitude:	36:49'36.24485" N	36:49'36.44383" N
Longitude:	116:28'43.45906" W	116:28'43.86407" W

TRIMVEC GPS RELATIVE POSITIONING SOLUTION SUMMARY: VERSION 90.060

SOLUTION OUTPUT FILE: 05130881.fix

STATION 1: Station ID: 0205 Session #: 088-1 Mar 29, 1991 21:21
Data-logging start time = 21:25 Data-logging stop time = 03:57

STATION 2: Station ID: 0413 Session #: 088-1 Mar 29, 1991 21:20
Data-logging start time = 21:24 Data-logging stop time = 03:57

STATION COORDINATES:

Sta	Ant (m)	Latitude	Longitude	Hgt (m)
1	1.538	36:50'57.66000" N	116:25'48.64294" W	1168.230
2 [TRP]	1.581	36:51'08.56995" N	116:27'18.92666" W	1330.026
2 [FLT]	1.561	36:51'08.57008" N	116:27'18.92686" W	1330.026
2 [FIX]	1.581	36:51'08.56997" N	116:27'18.92664" W	1330.034

Origin of station 1 coordinates : Trimvec pseudo range solution

SOLUTION SUMMARY:

Solution	dx (m)	dy (m)	dz (m)	dh (m)	RDOP
TRIPLE	-1970.870	1060.894	366.206	161.797	1.778
FLOAT	-1970.874	1060.897	366.210	161.798	0.077
FIXED	-1970.872	1060.888	366.212	161.805	0.026
FLT-FIX	-0.002	0.009	-0.002	-0.007	

Solution	Slope (m)	sig	Epochs/Rejected	Epoch interval	Epoch increment
TRIPLE	2268.0234	[0.019]	250/ 22	150 (secs)	5 (epochs)
FLOAT	2268.0290	[0.012]	269/ 9	150 (secs)	5 (epochs)
FIX	2268.0236	[0.006]	274/ 4	150 (secs)	5 (epochs)

Fixed solution quality factor: 65.9
Fixed solution rms: 0.024 (cycles)
Maximum float - fixed delta: 0.9 (cm)

Integers found, RMS is OK, FIXED solution recommended.

GPS Solution files
Vectors —SUMMARY

TRIMVEC GPS RELATIVE POSITIONING SOLUTION SUMMARY: VERSION 90.06

SOLUTION OUTPUT FILE: 99130881.fix

STATION 1: Station ID: 9999 Session #: 088-1 Mar 29, 1991 21:20
Data-logging start time = 21:25 Data-logging stop time = 03:57

STATION 2: Station ID: 0413 Session #: 088-1 Mar 29, 1991 21:20
Data-logging start time = 21:24 Data-logging stop time = 03:57

STATION COORDINATES:

Sta	Ant (m)	Latitude		Longitude		Hgt (m)
1	1.475	36:48'49.75857"	N	116:33'54.29731"	W	1098.506
2 [TRP]	1.581	36:51'08.40967"	N	116:27'19.00010"	W	1310.598
2 [FLT]	1.581	36:51'08.40910"	N	116:27'19.00232"	W	1310.527
2 [FIX]	1.581	36:51'08.40975"	N	116:27'19.00190"	W	1310.500

Origin of station 1 coordinates : User-input

SOLUTION SUMMARY:

Solution	dx (m)	dy (m)	dz (m)	dh (m)	RDOP
TRIPLE	9835.090	-2231.615	3549.717	212.092	1.742
FLOAT	9835.061	-2231.549	3548.660	212.021	0.087
FIXED	9835.085	-2231.523	3548.660	211.994	0.027
FLT-FIX	-0.024	-0.026	0.000	0.027	

Solution	Slope (m)	sig	Epochs/Rejected	Epoch interval	Epoch increment
TRIPLE	10691.2341	[0.041]	254/ 19	150 (secs)	5 (epochs)
FLOAT	10691.1750	[0.054]	263/ 15	150 (secs)	5 (epochs)
FIX	10691.1920	[0.022]	264/ 14	150 (secs)	5 (epochs)

Fixed solution quality factor: 7.9
Fixed solution rms: 0.067 (cycles)
Maximum float - fixed delta: 2.6 (cm)

Integers found, RMS is large. (see Trimvec Manual, page 3-12)

TRIMVEC GPS RELATIVE POSITIONING SOLUTION SUMMARY: VERSION 90.06Ø

SOLUTION OUTPUT FILE: 99050881.fix

STATION 1: Station ID: 9999 Session #: 088-1 Mar 29. 1991 21:20
Data-logging start time = 21:25 Data-logging stop time = 03:57

STATION 2: Station ID: 0205 Session #: 088-1 Mar 29, 1991 21:21
Data-logging start time = 21:25 Data-logging stop time = 03:57

STATION COORDINATES:

Sta	Ant (m)	Latitude	Longitude	Hgt (m)
1	1.475	36:48'49.75857" N	116:33'54.29731" W	1098.506
2 [TRP]	1.538	36:50'57.50056" N	116:25'48.71478" W	1148.691
2 [FLT]	1.538	36:50'57.49897" N	116:25'48.71811" W	1148.723
2 [FIX]	1.538	36:50'57.49971" N	116:25'48.71794" W	1148.692

Origin of station 1 coordinates : User input

SOLUTION SUMMARY:

Solution	dx (m)	dy (m)	dz (m)	dh (m)	RDOP
TRIPLE	11806.037	-3292.430	3182.466	50.185	1.743
FLOAT	11805.938	-3292.443	3182.446	50.217	0.080
FIXED	11805.959	-3292.410	3182.446	50.186	0.027
FLT-FIX	-0.021	-0.033	0.000	0.031	

Solution	Slope (m)	sig	Epochs/Rejected	Epoch interval	Epoch increment
TRIPLE	12662.9650	[0.048]	253/ 18	150 (secs)	5 (epochs)
FLOAT	12662.8716	[0.064]	268/ 8	150 (secs)	5 (epochs)
FIXED	12662.8826	[0.026]	269/ 7	150 (secs)	5 (epochs)

Fixed solution quality factor: 5.3
Fixed solution rms: 0.083 (cycles)
Maximum float - fixed delta: 3.3 (cm)

Integers found, RMS is large: (see Trimvec Manual, page 3-12)

TRIMVEC GPS RELATIVE POSITIONING SOLUTION SUMMARY: VERSION 90.060

SOLUTION OUTPUT FILE: 01090891.fix

STATION 1: Station ID: 0101 Session #: 089-1 Mar 30, 1991 21:17
Data-logging start time = 21:20 Data-logging stop time = 03:53

STATION 2: Station ID: 0309 Session #: 089-1 Mar 30, 1991 21:16
Data-logging start time = 21:20 Data-logging stop time = 03:53

STATION COORDINATES:

Sta	Ant (m)	Latitude		Longitude		Hgt (m)
1	1.441	36:48'10.27485"	N	116:29'57.56093"	W	1088.319
2 [TRP]	1.421	36:49'36.31622"	N	116:28'43.64878"	W	1222.486
2 [FLT]	1.421	36:49'36.31622"	N	116:28'43.64893"	W	1222.495
2 [FIX]	1.421	36:49'36.31633"	N	116:28'43.64859"	W	1222.499

Origin of station 1 coordinates : Trimvec pseudo range solution

SOLUTION SUMMARY:

Solution	dx (m)	dy (m)	dz (m)	dh (m)	RDOP
TRIPLE	2301.029	509.386	2204.172	134.168	1.736
FLOAT	2301.022	509.381	2204.178	134.177	0.080
FIXED	2301.030	509.377	2204.183	134.180	0.027
FLT-FIX	-0.008	0.004	-0.005	-0.004	

Solution	Slope (m)	sig	Epochs/Rejected	Epoch interval	Epoch increment
TRIPLE	3226.8536	[0.016]	260/ 13	150 (secs)	5 (epochs)
FLOAT	3226.8519	[0.017]	270/ 8	150 (secs)	5 (epochs)
FIXED	3226.8598	[0.007]	269/ 9	150 (secs)	5 (epochs)

Fixed solution quality factor: 57.8
Fixed solution rms: 0.024 (cycles)
Maximum float - fixed delta: 0.8 (cm)

Integers found, RMS is OK, FIXED solution recommended.

TRIMVEC GPS RELATIVE POSITIONING SOLUTION SUMMARY: VERSION 90.060

SOLUTION OUTPUT FILE: 01210891.fix

STATION 1: Station ID: 0101 Session #: 089-1 Mar 30, 1991 21:17
Data-logging start time = 21:20 Data-logging stop time = 03:53

STATION 2: Station ID: 0621 Session #: 089-1 Mar 30, 1991 21:16
Data-logging start time = 21:20 Data-logging stop time = 03:53

STATION COORDINATES:

Sta	Ant (m)	Latitude	Longitude	Hgt (m)
1	1.441	36:48'10.27485" N	116:29'57.56093" W	1088.319
2 [TRP]	1.432	36:44'03.72382" N	116:28'39.92127" W	921.603
2 [FLT]	1.432	36:44'03.72345" N	116:28'39.92198" W	921.588
2 [FIX]	1.432	36:44'03.72355" N	116:28'39.92233" W	921.578

Origin of station 1 coordinates : Trimvec pseudo range solution

SOLUTION SUMMARY:

Solution	dx (m)	dy (m)	dz (m)	dh (m)	RDOP
TRIPLE	-246.228	-4811.816	-6189.937	-166.716	1.755
FLOAT	-246.242	-4811.804	-6188.955	-166.730	0.081
FIXED	-246.245	-4811.791	-6188.959	-166.741	0.027
FLT-FIX	0.003	-0.013	0.004	0.011	

Solution	Slope (m)	sig	Epochs/Rejected	Epoch interval	Epoch increment
TRIPLE	7843.2869	[0.017]	257/ 16	150 (secs)	5 (epochs)
FLOAT	7843.2938	[0.040]	265/ 14	150 (secs)	5 (epochs)
FIXED	7843.2888	[0.017]	271/ 7	150 (secs)	5 (epochs)

Fixed solution quality factor: 22.2
Fixed solution rms: 0.039 (cycles)
Maximum float - fixed delta: 1.3 (cm)

Integers found, RMS is OK, FIXED solution recommended.

TRIMVEC GPS RELATIVE POSITIONING SOLUTION SUMMARY: VERSION 90.060

SOLUTION OUTPUT FILE: 09210891.fix

STATION 1: Station ID: 0309 Session #: 089-1 Mar 30, 1991 21:16
Data-logging start time = 21:20 Data-logging stop time = 03:53

STATION 2: Station ID: 0621 Session #: 089-1 Mar 30, 1991 21:16
Data-logging start time = 21:20 Data-logging stop time = 03:53

STATION COORDINATES:

Sta	Ant (m)	Latitude	Longitude	Hgt (m)
1	1.421	36:49:36.29623" N	116:28:43.62772" W	1223.442
2 [TRP]	1.432	36:44:03.70280" N	116:28:39.90022" W	922.560
2 [FLT]	1.432	36:44:03.70346" N	116:28:39.90058" W	922.547
2 [FIX]	1.432	36:44:03.70350" N	116:28:39.90148" W	922.523

Origin of station 1 coordinates : Trimvec pseudo range solution

SOLUTION SUMMARY:

Solution	dx (m)	dy (m)	dz (m)	dh (m)	RDOP
TRIPLE	-2547.266	-5321.220	-8393.136	-300.882	1.802
FLOAT	-2547.263	-5321.196	-8393.128	-300.896	0.081
FIXED	-2547.275	-5321.168	-8393.141	-300.919	0.026
FLT-FIX	0.012	-0.028	0.013	0.024	

Solution	Slope (m)	sig	Epochs/Rejected	Epoch interval	Epoch increment
TRIPLE	10259.0777	[0.021]	247/ 26	150 (secs)	5 (epochs)
FLOAT	10259.0578	[0.052]	258/ 20	150 (secs)	5 (epochs)
FIXED	10259.0570	[0.022]	274/ 4	150 (secs)	5 (epochs)

Fixed solution quality factor: 10.4
Fixed solution rms: 0.057 (cycles)
Maximum float - fixed delta: 2.8 (cm)

Integers found, RMS is OK, FIXED solution recommended.

TRIMVEC GPS RELATIVE POSITIONING SOLUTION SUMMARY: VERSION 90.060

SOLUTION OUTPUT FILE: 99010891.fix

STATION 1: Station ID: 9999 Session #: 089-1 Mar 30, 1991 21:16
Data-logging start time = 21:20 Data-logging stop time = 03:53

STATION 2: Station ID: 0101 Session #: 089-1 Mar 30, 1991 21:17
Data-logging start time = 21:20 Data-logging stop time = 03:53

STATION COORDINATES:

Sta	Ant (m)	Latitude	Longitude	Hgt (m)
1	1.474	36:48'49.75857" N	116:33'54.29731" W	1098.506
2 [TRP]	1.441	36:48'10.27747" N	116:29'57.34457" W	1058.321
2 [FLT]	1.441	36:48'10.27750" N	116:29'57.34535" W	1058.310
2 [FIX]	1.441	36:48'10.27813" N	116:29'57.34434" W	1058.290

Origin of station 1 coordinates : User input

SOLUTION SUMMARY:

Solution	dx (m)	dy (m)	dz (m)	dh (m)	RDOP
TRIPLE	4944.348	-3247.823	-998.665	-40.185	1.736
FLOAT	4944.334	-3247.806	-998.671	-40.196	0.084
FIXED	4944.369	-3247.792	-998.667	-40.216	0.027
FLT-FIX	-0.035	-0.014	-0.004	0.020	

Solution	Slope (m)	sig	Epochs/Rejected	Epoch interval	Epoch increment
TRIPLE	5999.3547	[0.019]	266/ 7	150 (secs)	5 (epochs)
FLOAT	5999.3358	[0.031]	258/ 25	150 (secs)	5 (epochs)
FIXED	5999.3565	[0.013]	272/ 6	150 (secs)	5 (epochs)

Fixed solution quality factor: 24.2
Fixed solution rms: 0.037 (cycles)
Maximum float - fixed delta: 3.5 (cm)

Integers found, RMS is OK, FIXED solution recommended.

TRIMVEC GPS RELATIVE POSITIONING SOLUTION SUMMARY: VERSION 90.060

SOLUTION OUTPUT FILE: 09050911.fix

STATION 1: Station ID: 0309 Session #: 091-1 Apr 1, 1991 21:09
Data-logging start time = 21:12 Data-logging stop time = 03:45

STATION 2: Station ID: 0205 Session #: 091-1 Apr 1, 1991 21:08
Data-logging start time = 21:12 Data-logging stop time = 02:57

STATION COORDINATES:

Sta	Ant (m)	Latitude	Longitude	Hgt (m)
1	1.422	36:49'36.31997" N	116:28'43.43156" W	1192.471
2 [TRP]	1.584	36:50'57.49966" N	116:25'48.71649" W	1148.732
2 [FLT]	1.584	36:50'57.49913" N	116:25'48.71748" W	1148.772
2 [FIX]	1.584	36:50'57.50026" N	116:25'48.71688" W	1148.711

Origin of station 1 coordinates : User input

SOLUTION SUMMARY:

Solution	dx (m)	dy (m)	dz (m)	dh (m)	RDOP
TRIPLE	4560.577	-554.040	1976.954	-43.739	1.807
FLOAT	4560.536	-554.067	1976.965	-43.699	0.087
FIXED	4560.581	-554.011	1976.956	-43.761	0.027
FLT-FIX	-0.045	-0.056	0.009	0.062	

Solution	Slope (m)	sig	Epochs/Rejected	Epoch interval	Epoch increment
TRIPLE	5001.4164	[0.028]	256/ 13	150 (secs)	5 (epochs)
FLOAT	5001.3868	[0.026]	263/ 12	150 (secs)	5 (epochs)
FI D	5001.4177	[0.011]	264/ 11	150 (secs)	5 (epochs)

Fixed solution quality factor: 15.2
Fixed solution rms: 0.049 (cycles)
Maximum float - fixed delta: 5.6 (cm)

Integers found, RMS is large. (see Trimvec Manual, page 3-12)

TRIMVEC GPS RELATIVE POSITIONING SOLUTION SUMMARY: VERSION 90.060

SOLUTION OUTPUT FILE: 09170911.fix

STATION 1: Station ID: 0309 Session #: 091-1 Apr 1, 1991 21:09
Data-logging start time = 21:12 Data-logging stop time = 03:45

STATION 2: Station ID: 0517 Session #: 091-1 Apr 1, 1991 21:08
Data-logging start time = 21:12 Data-logging stop time = 03:38

STATION COORDINATES:

Sta	Ant (m)	Latitude	Longitude	Hgt (m)
1	1.422	36:49'36.31997" N	116:28'43.43156" W	1192.471
2 [TRP]	1.525	36:49'31.20599" N	116:25'20.62802" W	1110.429
2 [FLT]	1.525	36:49'31.20604" N	116:25'20.62812" W	1110.434
2 [FIX]	1.525	36:49'31.20649" N	116:25'20.62809" W	1110.413

Origin of station 1 coordinates : User input

SOLUTION SUMMARY:

Solution	dx (m)	dy (m)	dz (m)	dh (m)	RDOP
TRIPLE	4487.671	-2264.846	-175.386	-82.042	1.755
FLOAT	4487.668	-2264.847	-175.382	-82.037	0.081
FIXED	4487.680	-2264.825	-175.383	-82.058	0.027
FLT-FIX	-0.012	-0.022	0.001	0.021	

Solution	Slope (m)	sig	Epochs/Rejected	Epoch interval	Epoch increment
TRIPLE	5029.8590	[0.027]	259/ 14	150 (secs)	5 (epochs)
FLOAT	5029.8566	[0.026]	270/ 8	150 (secs)	5 (epochs)
FIXED	5029.8570	[0.011]	269/ 9	150 (secs)	5 (epochs)

Fixed solution quality factor: 13.9
Fixed solution rms: 0.050 (cycles)
Maximum float - fixed delta: 2.2 (cm)

Integers found, RMS is large. (see Trimvec Manual, page 3-12)

TRIMVEC GPS RELATIVE POSITIONING SOLUTION SUMMARY: VERSION 90.060

SOLUTION OUTPUT FILE: 99090891.fix

STATION 1: Station ID: 9999 Session #: 089-1 Mar 30, 1991 21:16
Data-logging start time = 21:20 Data-logging stop time = 03:53

STATION 2: Station ID: 0309 Session #: 089-1 Mar 30, 1991 21:16
Data-logging start time = 21:20 Data-logging stop time = 03:53

STATION COORDINATES:

Sta	Ant (m)	Latitude	Longitude	Hgt (m)
1	1.474	36:48'49.75857" N	116:33'54.29731" W	1098.506
2 [TRP]	1.421	36:49'36.31988" N	116:28'43.43145" W	1192.474
2 [FLT]	1.421	36:49'36.31945" N	116:28'43.43253" W	1192.487
2 [FIX]	1.421	36:49'36.32007" N	116:28'43.43155" W	1192.477

Origin of station 1 coordinates : User input

SOLUTION SUMMARY:

Solution	dx (m)	dy (m)	dz (m)	dh (m)	RDOP
TRIPLE	7245.400	-2738.420	1205.514	93.968	1.705
FLOAT	7245.368	-2738.425	1205.512	93.981	0.081
FIXED	7245.399	-2738.418	1205.520	93.971	0.027
FLT-FIX	-0.031	-0.007	-0.008	0.0	

Solution	Slope (m)	sig	Epochs/Rejected	Epoch interval	Epoch increment
TRIPLE	7838.8798	[0.029]	273/ 0	150 (secs)	5 (epochs)
FLOAT	7838.8513	[0.040]	267/ 12	150 (secs)	5 (epochs)
FIXED	7838.8785	[0.017]	266/ 12	150 (secs)	5 (epochs)

Fixed solution quality factor: 13.0
Fixed solution rms: 0.049 (cycles)
Maximum float - fixed delta: 3.1 (cm)

Integers found, RMS is OK, FIXED solution recommended.

TRIMVEC GPS RELATIVE POSITIONING SOLUTION SUMMARY: VERSION 90.060

SOLUTION OUTPUT FILE: 99210891.fix

STATION 1: Station ID: 9999 Session #: 089-1 Mar 30, 1991 21:16
Data-logging start time = 21:20 Data-logging stop time = 03:53

STATION 2: Station ID: 0621 Session #: 089-1 Mar 30, 1991 21:16
Data-logging start time = 21:20 Data-logging stop time = 03:53

STATION COORDINATES:

Sta	Ant (m)	Latitude	Longitude	Hgt (m)
1	1.474	36:48'49.75857" N	116:33'54.29731" W	1098.506
2 [TRP]	1.432	36:44'03.72529" N	116:28'39.70496" W	891.556
2 [FLT]	1.432	36:44'03.72473" N	116:28'39.70626" W	891.579
2 [FIX]	1.432	36:44'03.72544" N	116:28'39.70549" W	891.548

Origin of station 1 coordinates : User input

SOLUTION SUMMARY:

Solution	dx (m)	dy (m)	dz (m)	dh (m)	RDOP
TRIPLE	4698.133	-8059.599	-7187.631	-206.950	1.796
FLOAT	4698.092	-8059.610	-7187.631	-206.927	0.083
FIXED	4698.125	-8059.585	-7187.632	-206.958	0.026
FLT-FIX	-0.033	-0.025	0.001	0.031	

Solution	Slope (m)	sig	Epochs/Rejected	Epoch interval	Epoch increment
TRIPLE	11776.7413	[0.025]	249/ 24	150 (secs)	5 (epochs)
FLOAT	11776.7326	[0.060]	264/ 15	150 (secs)	5 (epochs)
FIXED	11776.7293	[0.025]	275/ 4	150 (secs)	5 (epochs)

Fixed solution quality factor: 7.9
Fixed solution rms: 0.065 (cycles)
Maximum float - fixed delta: 3.3 (cm)

Integers found, RMS is OK, FIXED solution recommended.

TRIMVEC GPS RELATIVE POSITIONING SOLUTION SUMMARY: VERSION 90.060

SOLUTION OUTPUT FILE: 09210911.fix

STATION 1: Station ID: 0309 Session #: 091-1 Apr 1, 1991 21:09
Data-logging start time = 21:12 Data-logging stop time = 03:45

STATION 2: Station ID: 0621 Session #: 091-1 Apr 1, 1991 21:08
Data-logging start time = 21:13 Data-logging stop time = 03:45

STATION COORDINATES:

Sta	Ant (m)	Latitude	Longitude	Hgt (m)
1	1.422	36:49'36.31997" N	116:28'43.43156" W	1192.471
2 [TRP]	1.432	36:44'03.72338" N	116:28'39.70701" W	891.517
2 [FLT]	1.432	36:44'03.72434" N	116:28'39.70585" W	891.461
2 [FIX]	1.432	36:44'03.72285" N	116:28'39.70656" W	891.537

Origin of station 1 coordinates : User input

SOLUTION SUMMARY:

Solution	dx (m)	dy (m)	dz (m)	dh (m)	RDOP
TRIPLE	-2547.314	-5321.164	-8393.217	-300.955	1.746
FLOAT	-2547.260	-5321.121	-8393.226	-301.010	0.088
FIXED	-2547.315	-5321.192	-8393.218	-300.934	0.027
FLT-FIX	0.055	0.071	-0.008	-0.076	

Solution	Slope (m)	sig	Epochs/Rejected	Epoch interval	Epoch increment
TRIPLE	10259.1267	[0.026]	258/ 13	150 (secs)	5 (epochs)
FLOAT	10259.0991	[0.052]	257/ 19	150 (secs)	5 (epochs)
FIX	10259.1427	[0.022]	270/ 6	150 (secs)	5 (epochs)

Fixed solution quality factor: 4.2
Fixed solution rms: 0.072 (cycles)
Maximum float - fixed delta: 7.1 (cm)

Integers found, RMS is large. (see Trimvec Manual, page 3-12)

TRIMVEC GPS RELATIVE POSITIONING SOLUTION SUMMARY: VERSION 90.060

SOLUTION OUTPUT FILE: 21050911.fix

STATION 1: Station ID: 0621 Session #: 091-1 Apr 1, 1991 21:08
Data-logging start time = 21:13 Data-logging stop time = 03:45

STATION 2: Station ID: 0205 Session #: 091-1 Apr 1, 1991 21:08
Data-logging start time = 21:12 Data-logging stop time = 02:57

STATION COORDINATES:

Sta	Ant (m)	Latitude	Longitude	Hgt (m)
1	1.432	36:44'03.78833" N	116:28'39.67574" W	918.951
2 [TRP]	1.584	36:50'57.56071" N	116:25'48.68898" W	1176.227
2 [FLT]	1.584	36:50'57.56148" N	116:25'48.68834" W	1176.241
2 [FIX]	1.584	36:50'57.56369" N	116:25'48.68687" W	1176.135

Origin of station 1 coordinates : Trimvec pseudo range solution

SOLUTION SUMMARY:

Solution	dx (m)	dy (m)	dz (m)	dh (m)	RDOP
TRIPLE	7107.785	4767.083	10370.152	257.276	1.881
FLOAT	7107.800	4767.079	10370.180	257.290	0.090
FIXED	7107.889	4767.176	10370.170	257.183	0.027
FLT-FIX	-0.089	-0.097	0.010	0.106	

Solution	Slope (m)	sig	Epochs/Rejected	Epoch interval	Epoch increment
TRIPLE	13445.6590	[0.024]	236/ 32	150 (secs)	5 (epochs)
FLOAT	13445.6866	[0.068]	265/ 9	150 (secs)	5 (epochs)
FI)	13445.7606	[0.028]	266/ 8	150 (secs)	5 (epochs)

Fixed solution quality factor: 3.8
Fixed solution rms: 0.082 (cycles)
Maximum float - fixed delta: 9.7 (cm)

Integers found, RMS is large. (see Trimvec Manual, page 3-12)

TRIMVEC GPS RELATIVE POSITIONING SOLUTION SUMMARY: VERSION 90.060

SOLUTION OUTPUT FILE: 21170911.fix

STATION 1: Station ID: 0621 Session #: 091-1 Apr 1, 1991 21:08
Data-logging start time = 21:13 Data-logging stop time = 03:45

STATION 2: Station ID: 0517 Session #: 091-1 Apr 1, 1991 21:08
Data-logging start time = 21:12 Data-logging stop time = 03:38

STATION COORDINATES:

Sta	Ant (m)	Latitude	Longitude	Hgt (m)
1	1.432	36:44'03.78833" N	116:28'39.67574" W	918.951
2 [TRP]	1.525	36:49'31.26886" N	116:25'20.59948" W	1137.915
2 [FLT]	1.525	36:49'31.26853" N	116:25'20.59921" W	1137.922
2 [FIX]	1.525	36:49'31.27030" N	116:25'20.59822" W	1137.836

Origin of station 1 coordinates : Trimvec pseudo range solution

SOLUTION SUMMARY:

Solution	dx (m)	dy (m)	dz (m)	dh (m)	RDOP
TRIPLE	7034.920	3056.295	8217.843	218.964	1.827
FLOAT	7034.921	3056.282	8217.839	218.971	0.085
FIXED	7034.988	3056.362	8217.832	218.885	0.027
FLT-FIX	-0.067	-0.080	0.007	0.086	

Solution	Slope (m)	sig	Epochs/Rejected	Epoch interval	Epoch increment
TRIPLE	11241.1736	[0.022]	238/ 34	150 (secs)	5 (epochs)
FLOAT	11241.1678	[0.057]	267/ 9	150 (secs)	5 (epochs)
FI)	11241.2256	[0.023]	268/ 8	150 (secs)	5 (epoch

Fixed solution quality factor: 4.9
Fixed solution rms: 0.072 (cycles)
Maximum float - fixed delta: 8.0 (cm)

Integers found, RMS is large. (see Trimvec Manual, page 3-12)

TRIMVEC GPS RELATIVE POSITIONING SOLUTION SUMMARY: VERSION 90.060

SOLUTION OUTPUT FILE: 05170911.fix

STATION 1: Station ID: 0205 Session #: 091-1 Apr 1, 1991 21:08
Data-logging start time = 21:12 Data-logging stop time = 02:57

STATION 2: Station ID: 0517 Session #: 091-1 Apr 1, 1991 21:08
Data-logging start time = 21:12 Data-logging stop time = 03:38

STATION COORDINATES:

Sta	Ant (m)	Latitude	Longitude	Hgt (m)
1	1.584	36:50'57.57081" N	116:25'48.68527" W	1174.901
2 [TRP]	1.525	36:49'31.27802" N	116:25'20.59524" W	1136.622
2 [FLT]	1.525	36:49'31.27784" N	116:25'20.59609" W	1136.590
2 [FIX]	1.525	36:49'31.27747" N	116:25'20.59662" W	1136.605

Origin of station 1 coordinates : Trimvec pseudo range solution

SOLUTION SUMMARY:

Solution	dx (m)	dy (m)	dz (m)	dh (m)	RDOP
TRIPLE	-72.873	-1710.833	-2152.311	-38.278	1.839
FLOAT	-72.862	-1710.804	-2152.335	-38.310	0.086
FIXED	-72.901	-1710.814	-2152.336	-38.296	0.027
FLT-FIX	0.019	0.010	0.001	-0.014	

Solution	Slope (m)	sig	Epochs/Rejected	Epoch interval	Epoch increment
TRIPLE	2750.4009	[0.020]	246/ 23	150 (secs)	5 (epochs)
FLOAT	2750.4011	[0.015]	261/ 14	150 (secs)	5 (epochs)
FI)	2750.4087	[0.007]	261/ 14	150 (secs)	5 (epochs)

Fixed solution quality factor: 39.7
Fixed solution rms: 0.027 (cycles)
Maximum float - fixed delta: 1.9 (cm)

Integers found, RMS is OK, FIXED solution recommended.